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LOYOLA UNIVERSITY CHICAGO

# THE EFFECTS OF A MULTI-LAYER ACCOUNTABILITY SYSTEM ON TEACHER SELF-EFFICACY AND CLASSROOM GOAL ORIENTATIONS AND ITS IMPACT ON STUDENT PERFORMANCE

A DISSERTATION SUBMITTED TO

THE FACULTY OF THE GRADUATE SCHOOL

IN CANDIDACY FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

PROGRAM IN APPLIED SOCIAL PSYCHOLOGY

BY

CHRISTINE POINDEXTER-HARRIS

CHICAGO, ILLINOIS

MAY 2015

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I would like to acknowledge my family who continuously offered words of wisdom, encouragement, and advice- Mom, Dad, Jon, Edward, Preeti. When I began this journey, I never knew how much it would morph and impact my life.

My friends who asked “when?”- Jacqueline, Latrice, Regina, and Samantha. To Shontel, Crystal, and Andrea who always had reassuring and firm words. To April, Jeff, and Charlette who gave me the tough love necessary to push to the end. To Noelle and my running crew who reminded me to focus and finish. To my advisor, Scott Tindale, who always had faith in me. To my husband, Jarrard, for listening and supporting me in countless ways through this journey.

For my parents, who instilled in me the value of education
and who nurtured my enthusiasm for learning.

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ABSTRACT

There are multiple factors that affect student academic achievement, including student, parent, and teacher factors. The present research studies the relationships among teacher self-efficacy, classroom goal orientations and structures, and student performance. Previous studies have shown a strong correlation between teacher self-efficacy and classroom goal orientation. Although much research has been done on both issues, very little research has taken into account the role of organizational education structure and its impact on how teachers may or may not change to increase student performance. Research was conducted from data obtained at an urban, Midwest charter school which has a unique organizational model of increasing student achievement with multiple levels of accountability.

The current research addresses: the positive relationship between classroom goal structures and student performance, the significant relationship between classroom goal structure and teacher self-efficacy, the impact of organizational structure on teacher self-efficacy, and the organizational structure affect on teacher classroom goal orientation. I argue that the novel organizational model of the researched school does not significantly impact student performance in relation to teacher self-efficacy nor classroom goal orientation. Increased student performance can be more fully explained at the teacher level, regardless of the educational structure under which teachers are employed.

# CHAPTER 1

# INTRODUCTION

There are multiple factors that affect student academic achievement, including student, parent, and teacher factors. I will specifically focus on the role of teacher self-efficacy and teacher classroom goal orientation. Although much research has been done on both issues, very little research has taken into account the role of organizational education structure and its impact on how teachers may or may not change to motivate students. Research will be conducted from data obtained from an urban, Midwest charter school which has a unique portfolio model of increasing student achievement with multiple levels of accountability.

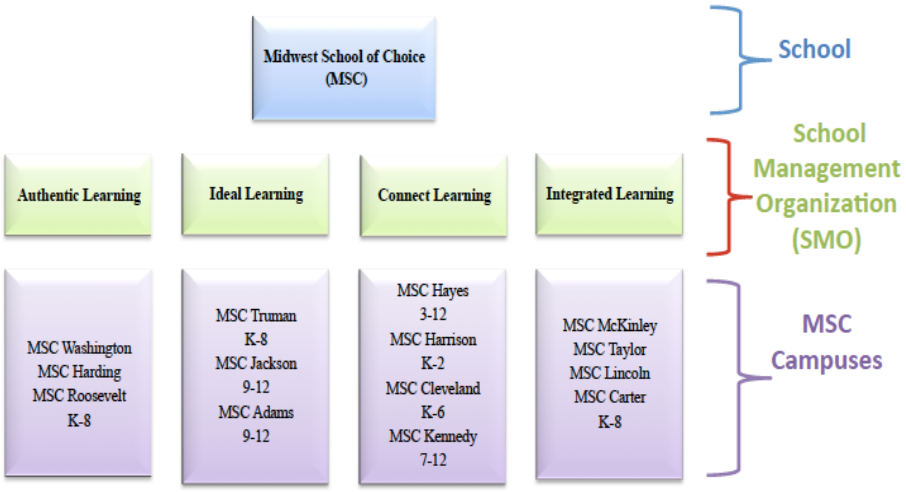
The present research will address: if there is a relationship between classroom goal structures and student performance, if there is a relationship between classroom goal structure and teacher self-efficacy, whether organizational structure (*i.e.* a school with multiple educational management companies) affects teacher self-efficacy, and whether organizational structure affects teacher classroom goal orientation.

## Applied Framework

The researched school is a kindergarten through 12$^{th}$ grade public charter school serving over 9000 students in Chicago and Rockford, Illinois. Student demographics include 86% low-income and 95% are African-American or Latino. In the 2010-11

school year, the school contracted with four school management organizations[1] (SMOs) to run the day-to-day operations (*i.e.* hire and employ teachers and staff, choose and implement curriculum, etc.) at the school's 15 campuses[2]. The school's structure is unique and innovative; it was the first school in the country with a portfolio based organizational structure, or having multiple campuses operated by several management organizations. Self-described as a data driven school, the contractual targets set by MSC take on a performance approach to increasing student academic achievement (Appendix A).

Figure 1. Midwest School of Choice Organizational Structure, 2012-13 School Year




The students MSC serves are in underserved communities, or communities that may lack standard resources such as a library or grocery store. Also, MSC is a school of

[1] The term school management organizations (SMO) will be used in this research. The term is often used synonymously is charter management organization (CMO) and nonprofit management organizations, which operate only charter schools and educational management organizations (EMO) which are typically for profit. The school contracts with both for-profit and nonprofit management organizations.

[2] During the 2010-11 school year MSC partnered with Learning for All, Integrated Learning, Smarter Learning, and Ideal Learning. In the 2011-12 school year, Learning for All was no longer a partner with MSC. Those campuses are now managed by Authentic Learning or Integrated Learning.

choice and not a neighborhood school. Parents and students choose to enroll in a MSC campus after being chosen randomly in the annual lottery[3]. These students typically are below average in absolute scores compared to a national sample on the Northwest Evaluation Association Measures of Academic Progress assessment (NWEA MAPs). Although students may be below the national average, MSC makes above average growth per academic year based on the MAPs, a nationally normed assessment. MSC has established the goal of closing the achievement gap for students within five years of opening a campus. This implies the students will grow enough academically over five years so that they will score on average the same as their peers nationally. For families, this means their low-income student will academically perform at the same level as a middle class, Caucasian student. In order to meet these goals, MSC has embedded yearly student performance targets in their SMO contracts[4]. Failing to meet student performance targets can result in a campus being on probation with MSC for the following year and/or potentially not renewing a contract with the SMO.

MSC's mission is "to provide a rigorous and innovative college-preparatory education that meets the needs of today's students" (Midwest School of Choice, 2010). The contract targets are the means in which MSC determines if the campus and SMO is ensuring that mission is being met. Given what we know about best practices with

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[3] Charter school acceptance at MSC and all Chicago Public School charter schools are based on an open lottery system. Students who apply are accepted if the number of available seats is greater than the number of applications. A random lottery is conducted if the number of applications exceed the number of available seats. For MSC students must complete an application which requests the applying student's name, address, proof of age, and proof of Chicago residency. Previous student grades and records are not a part of the application process.

[4] See Appendix A: Midwest School of Choice Contract Tables with Performance Standards for Elementary and High Schools

motivating low-income, ethnic minority learners to be academically successful in the classroom, research needs to further investigate the impact a performance based culture has on a teacher's personal classroom goal orientations and teacher self-efficacy.

There are many influences on a student's academic achievement motivation, including the student's individual, parental, and teacher factors. The culture of testing and MSC's emphasis and therefore the SMO's emphasis on testing may positively or negatively affect teachers. A teacher, whose personal style may dictate a mastery goal orientation to learning may create performance goal structured classrooms (i.e. academic data walls in the classroom, student/parent discussions around data) and disregard the mastery classroom goal structure in order to meet performance targets.

Some management companies provide bonuses for teachers who meet their classroom academic targets on the high stakes MSC assessment. Charter school teachers typically are paid less than traditional Chicago Public School teachers. That results in many teachers new to teaching (i.e. Teach for America[5] teachers, recent education graduates, teachers with less than 2 years of teaching experience). Charter schools also have a higher teacher turnover or a lower retention rate than traditional public school teachers. In Chicago, charter teachers are not a part of the Chicago Teachers Union (CTU) and therefore do not receive the pension plan or higher pay scale that CTU members receive. Therefore, a paid bonus at the end of the year is a welcomed incentive.

SMOs are motivated to reach their academic targets regardless of their mission, for academic purposes as well as business reputations. Midwest School of Choice is one

[5] Teach for America (TFA) is a program developed for bring new and innovative teachers into education. Most teachers have degrees in a field other than education. Participants sign a TFA contract to work at an inner city school for at least two years (www.teachforamerica.org).

of the largest charter schools in Illinois and is recognized nationally as a successful charter model. The charter school is has two campuses in the top 10 highest performing elementary charter schools in Chicago on the 2010 state assessment (Chicago Public Schools, 2011a). The MSC high school average 2010 ACT score ranks in the top 15 Chicago high schools, excluding selective enrollment in which students must test to gain acceptance (Chicago Public Schools, 2011b). All MSC campuses are outperforming the neighborhood schools their students would likely attend if they had not enrolled in MSC (Chicago Public Schools, 2011a). MSC has a reputation of holding to the yearly contracts and has not renewed SMO contracts on several occasions. SMOs know that a lack of performance is something to be taken seriously. From a business perspective: MSC had contracts with four organizations, including not-for-profit (Learning for All and Ideal Learning) and for-profit entities (Smarter Learning and Integrated Learning). SMOs who do not renew contracts with MSC could potentially lose a significant monetary amount from their organizations.

Given that pressure, the SMO also relates the importance of the targets to the teachers and staff at the campus. The type of communication differs by SMO. Some campuses are high performing and know the targets, yet continue to maintain their campus' methods around data with little interaction or input from the SMO. Other campuses, mostly the campuses that struggle more academically and culturally have to manage with the SMO being more involved in the campuses operations. Those campuses also receive more attention from MSC in terms of teacher professional development and

the campuses use of student and school data to drive instruction to ensure teachers are receiving the proper supports to increase student achievement.

The question remains, does a performance driven approach to managing schools have an effect on teachers' self-efficacy and their relationship to students in terms of classroom goal orientation? One perspective would suggest yes it does, especially if the teacher would change their classroom goal structure from a mastery goal structure to a performance goal structure. Another perspective is that if teachers fail to meet their targets and attribute the failure solely to external sources (i.e. improperly set targets, lack of student motivation, lack of parental support of students). Another perspective would state that it will vary depending on the teachers' connection or disconnect to the SMO and to MSC. Teachers who are more performance driven may be more comfortable with the targets than those who take a more mastery approach to teaching and learning.

The applied framework of this study involves the novel organizational structure of the participating organization. There are multiple layers of accountability involved in measuring whether MSC is meeting its mission. The theoretical framework for this study is rooted in self-efficacy and goal orientations. Research has concluded that there is a connection between both self-efficacy and classroom goal structures on student performance (Dowson & McInerney, 2003; Malmberg, 2008; Meece, Anderman, & Anderman, 2006; Murayama & Elliot, 2009; Parajes, 2003; Pressley, Raphael, Gallagher, & DiBella, 2004; Wolters, 2004). The research has not approached teacher self-efficacy and classroom goal orientation in a multi-level accountability system.

# CHAPTER 2

# THEORETICAL FRAMEWORK:

# GOAL THEORY AND ATTRIBUTION THEORY

## Goal Theory—Goal Orientations and Classroom Goal Structures

### Student Goal Orientations and Structures

Goal theory or goal orientations categorize an individual's achievement motivation into four categories based on goal orientation- mastery and performance and goal structure- approach and avoidance (Bjornebekk, 2009; Dweck, 1988; Harackiewicz, Barron, Pintrich, & Elliot, 2002; Heckhausen, 1967; Meece, et al., 2006; Wolter, 2004). Students take multiple approaches to learning and can adjust their approach to learning based on the teacher's goal orientations (Meece et al., 2006). Research on goal theory suggests students adopt a mastery or a performance based approach to learning (Dweck, 1986; Linnenbick, 2005; Urdan & Mestas, 2006). Students are motivated to learn by an intrinsic desire to gain knowledge. Mastery orientation is akin to learning for learning's sake (Kaplan & Maehr, 1999). Students with a mastery orientation generally enjoy learning and are motivated by an internal desire of achievement and developing skills. A performance goal orientation to learning means the student uses a comparison point to determine their success, which could include another student in the class with the goal being to outperform the other student. Performance goal oriented students base their achievement evaluations on external cues of success and external points of comparison

to demonstrate competence (i.e. their grade relative to their classmates) (Dweck, 1986; Linnenbrink, 2005; Urdan & Mestas, 2006).

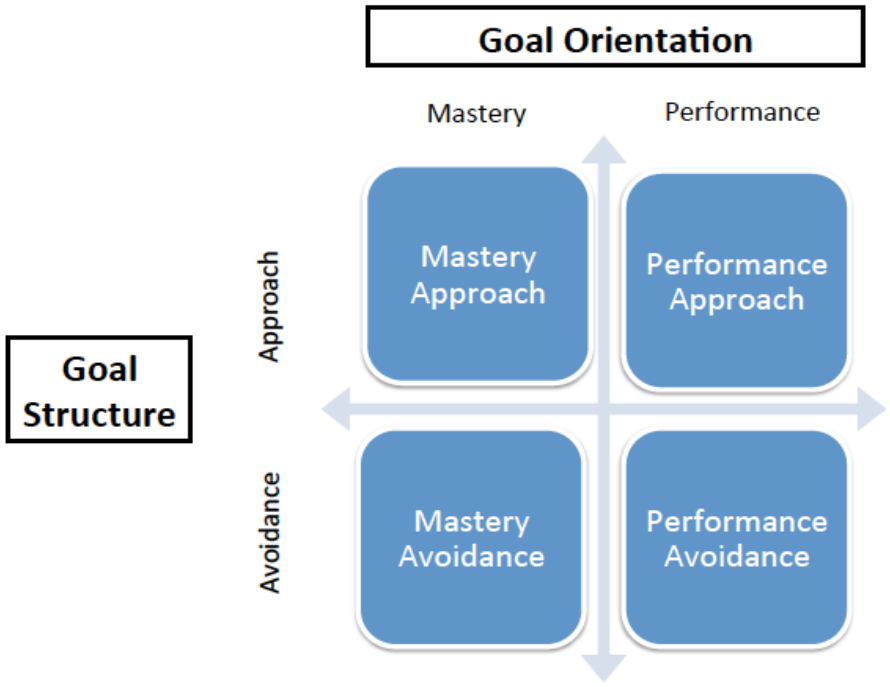
Goal theory further examines the mastery versus performance orientation with an approach or an avoidance goal structure. The approach structure involves wanting to gain certain rewards from the task (Elliot, 1999; Elliot & Thrash, 2003). For example, a performance-approach would describe a student wanting to outperform others in order to receive positive praise from a parent, teacher, or other figure. The mastery–approach would involve a student wanting to learn a skill or topic for the reward of self-satisfaction.

The approach structure focuses on obtaining positive judgments (performance-approach) or the focus is on wanting to master a task (mastery-approach). The avoidance structure is developed when a student wishes to avoid certain behaviors, and it has an indirect influence on behaviors in the classroom. Avoidance behaviors negatively impact student participation and risk taking behaviors in the classroom. Students that wish to avoid negative consequences generally do not engage in academic risk taking. For example, a student would not raise their hand in the classroom to answer a question they may be unsure of. The student would want to avoid any negative associations that could be attributed to them. Urdan and Mestas (2006) used actual student statements to illustrate the goal orientation and structures. For example, “I don’t want to be the stupidest kid in this class and everyone looks down on me.” (Urdan & Mestas, 2006, p. 358). A performance-avoidance student would want to avoid appearing as if they could not excel as compared to others (Urdan & Midgley, 2001). Therefore, that student would be less likely to engage themselves in the classroom for fear that others would realize

they do not know a piece of information or classmates labeling them as “stupid”. An applied example includes the student who misbehaves right before a test and being kicked out of the class. The student is now successful in not having to take the test and has avoided potentially being identified as not knowing the material.

The avoidance structure involves the student wanting to avoid certain behaviors (Elliot, 1999; Elliot & Covington, 2001; Covington & Mueller, 2001). A mastery-avoidance student would not engage in behaviors which would require the risk of not knowing or showing internally that they do not have a particular set of skills (Barker, McInerney, & Dowson, 2002; Meece et al., 2006). A mastery-avoidance orientation would involve a student avoiding misunderstanding or not being able to master a skill (Meece et al., 2006).

Figure 2. The Relationship between Goal Orientation and Goal Structure.



## Teacher Classroom Goal Structures

Similar to the goal orientations of students, teachers develop a set of goal structures for their classrooms. The classroom goal structure is developed through a combination of styles related to differentiated instruction and use of data driven information used for the grouping of students (Meece, 2006). Classroom goal structures influence a student's academic achievement motivation. Studies have shown that students can and do vary the goal structures they use depending on the classroom and school environment (Meece et al., 2006). Although research suggests that either performance or mastery orientations can be beneficial to students, there are some downsides to adhering to a performance approach from the early childhood years throughout middle and high school (Meece et al., 2006). Performance goals have been correlated with surface-level knowledge of information including rote memorization, opposed to the deeper understanding of subject matter found in mastery goal orientations. Also, classrooms with mastery goal orientations have characteristics similar to that of motivating instruction (DiCintio & Gee, 1999). It provides choice and collaboration; challenging, interesting, and relevant pedagogy; rewards competence and learning; allows for higher order thinking skills and self-expression; and provides a depth of knowledge. Given the advantages to a mastery classroom goal orientation and that most low-income minority students have a mastery orientation to learning, it is interesting that testing and accountability systems may be encouraging performance orientations.

## Attributional Theory and its Role in Self-Efficacy

The goal theory and goal orientation have a similar approach as attribution

theory in that the mastery versus performance almost parallels intrinsic and extrinsic motivation. Attribution theory describes to what one attributes their behavior—to either internal or external factors (Weiner & Kukla, 1970). This further illuminates how teachers view their impact on student achievement. Teachers may attribute a failure in student performance to external factors (i.e. the student, MSC, the environment) and not to internal factors (i.e. things attributed to the teacher such as poor instructions, poor classroom management, lack of preparedness for class, lack of skills or knowledge to teach the class).

As relative to student academic achievement motivation, the student can be intrinsically or extrinsically motivated to achieve academically. The students who typically approach learning from a mastery view point are more likely to enjoy going deep into a subject matter regardless of the external gains that may be involved, such as getting first place in a science fair. An intrinsically, motivated student would become engaged in the work for the sake of understanding the task or subject at hand and not due to an extrinsic reward (Bornholt & Moeller, 2003). Attribution theory related to student achievement harkens on the idea of internal versus external, or situational versus dispositional characteristics. The same can be applied to the teacher perspective of classroom achievement. If the result of a teaching situation is positive (e.g. a classroom meets their assessment target), than the teacher attributes that success to dispositional or intrinsic abilities (e.g. I am a great educator). Given a negative result of a situation (e.g. a classroom does not meet their target), the individual failure is attributed to a situational or external characteristic over which they had no control (e.g. the students were not focused)

(Weiner, 1979; Weiner & Kukla, 1970). Therefore, the teacher's attributional beliefs around their student's performance may be related to the teacher's sense of self-efficacy (Martin, 2006; Goddard, Hoy, & Woolfolk Hoy, 2000).

## Self-Efficacy and Student Performance

Self-efficacy is a person's belief that they have the knowledge and skills to be successful in a particular area (Bandura, 1977). Self-efficacy can apply to multiple areas of the self and to various domains of the self. For example, an individual can have a high rating of self-efficacy in completing tasks at work and low ratings of self-efficacy in completing a task in his or her personal life outside of work. Self-efficacy has an impact on student performance on multiple levels: the student, parent, and teacher.

Student self-efficacy is the student's belief that he or she can be successful and meet academic goals (Howse, Lange, Farran, & Boyles, 2003). Several researchers have noted a lack of self-efficacy directly relates to lowered academic achievement motivation (Pajares, 2003; Turner & Johnson, 2003). Students who are high in self-efficacy are known to be more willing to take academic risks, perform better on recall tasks, more likely to have a mastery goal orientation, and are more likely to be academically successful in the classroom than students low in self-efficacy. Students low in academic self-efficacy, have a low belief that they can be academically successful. These students are not known to participate in class or exhibit higher order thinking skills in the classroom. Stereotypes play a role in academic self-efficacy. Historically, there has been a discrepancy in the portrayed achievements of minority and poor students. This can negatively affect a student's perception of themselves as learners (i.e. achievement of

females in math tasks, black males as nonreaders, white students as athletes) (Carr & Steele, 2009; Steele & Aronson, 1998).

Notably, a method of increasing student self-efficacy as it relates to academic achievement is to provide student choice in the classroom (D'Ailly, 2004; Daniels, & Arapostathis, 2005). DiCintio and Gee (1999) postured that the key to unlocking student motivation is to discourage teacher-centered learning and motivate students by creating an environment that is student driven and provides students with academic choices in the classroom. Their study focused on a population of learners at-risk of not completing high school; the students were part of an alternative educational program. These student learners indicated an increase in student engagement when they were given more education choices in the classroom and presented with more challenging levels of work.

Contemporary research has identified several parental characteristics which influences student academic achievement, including self-efficacy, self-regulation skills, and attachments styles. For parents, self-efficacy begins first with the parents' belief in their parenting strategies and accomplishments. Parental self-efficacy is directly related to the modeling of appropriate behaviors for their student. Turner and Johnson (2003) found parents with a general increase in self-efficacy also had the resources to support their development of parental knowledge. Parents with decreased self-efficacy were more likely to engage in negative self-thoughts in difficult situations leading to a decrease in problem solving attempts and abilities. The negative self-cognitions were strongly correlated with a decrease in the quality of parenting. This was evident a year later as the student displayed feelings of shame when not being able to master a task. There was also

a decrease in persistence, or the number of times the child attempted to complete the task. Conversely, mothers with higher self-efficacy displayed more positive parenting styles than mothers with low self-efficacy. These mothers provided positive feedback to their children as the child attempted to complete a task, and their children were engaged in less avoidant tactics in completing a task and chose more challenging tasks a year later (Turner & Johnson, 2003).

The third area of efficacy which influences student achievement is teacher self-efficacy, or a teacher's belief that they can be successful educators. Teachers who rated high in self-efficacy were more likely to engage the students as learners. Students also rated them higher than teachers who were low in self-efficacy (Hoy, 2000). Bandura theorized four domains of teaching efficacy (1977, 1997). Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) and Hoy and Woolfolk (1993) extend on Bandura's theory and suggests that teacher self-efficacy does not apply to all teaching situations but reaches into multiple teaching domains including discipline, instruction, school culture, and decision making. It is theorized there are variations of efficacy levels between the domains (Tschannen-Moran & Woolfolk Hoy, 2001). For example, a teacher may feel efficacious when teaching math and feel a low sense of self-efficacy when teaching reading.

The first domain, teacher classroom management has a direct impact on student achievement. Classroom management is defined as the ability of a teacher to have positively engaged students in the classroom (Hoy & Woolfolk, 1993). Constant disruptions in the classroom can stem from a variety of factors including, a lack of

respect for the teacher, a lack of engagement of students causing them to become disruptive, students being disconnected from the curricula then causing students to become disengaged from the teaching at hand. A teacher's belief that they can manage a classroom is typically directly linked to their actual ability to manage. Stereotyping can also play a role. If teachers have stereotyped student behavior based on the child's economic or racial background, they may be implicitly validating inappropriate behavior in the classroom and distracting students from learning. They are further attributing the student behavior to internal student factors without accurately evaluating the role of situational variables.

Secondly, a teacher's instructional self-efficacy includes varying beliefs on what and how much they can control in the classroom. This is especially important in teachers working with low-income and minority students. Teachers may have stereotypes of the type of learning or how much learning can occur given a child's economic or home life structure. If a teacher believes there are limitations on a student's learning and vastly underestimates the child's abilities, they may be withholding the student from educational opportunities.

The last two domains of teacher self-efficacy include influencing parental engagement and school culture. The parental engagement efficacy domain is a measure of how strongly teachers believe they can influence parental engagement at MSC and in their students' academic lives. MSC culture conceptually relates to the teacher's belief that they have a value-add to MSC climate (Hoy, 2000). School climate and culture refers to the general feeling of a school. The concept is that the teachers feel they have a voice

in MSC and are invested.

With the transitioning structure on the public school system, many districts and entrepreneurs are looking for replicable educational models that can improve student achievement, especially to underserved students who need educational options within the public school system. Research has also questioned the performance based policies and its impact on student achievement (Stone & Lane, 2003). Midwest School of Choice's model is interesting for several reasons: 1.) MSC is unique nationally in its structure in partnering with multiple SMOs, 2.) MSC's financial model is to operate on the public dollar, exclusive of philanthropic funding, and 3.) MSC developed a 10-point evaluation rubric for student performance based on summative and formative assessments and both internal and state mandated assessments/tests. Studying this organization's model and the impact of student performance and teacher efficacy is crucial in terms of discussing its potential to replicate the model and where improvements can be made. In general, I expected mastery approaches to lead to better performance than performance approaches and that teacher efficacy would be particularly important for performance under mastery orientations.

# CHAPTER 3

# METHODOLOGY

Past research has made the connection between student achievement and teacher self-efficacy and classroom goal orientations. Few studies have researched the dependent variables within the context of a small, layered organizational structure. The present non-experimental research will investigate if there is a relationship between classroom goal orientation structures and student performance and classroom goal structures and teacher self-efficacy. Furthermore, it will research if organizational structures affect specific teacher domains of self-efficacy. The research design includes a teacher cross-sectional survey and archival student performance data. The research hypotheses include:

1. Teachers with higher levels of teacher efficacy will also show higher levels of a mastery approach to classroom instruction, and will show lower levels of a performance approach as compared to teachers with lower teacher efficacy.
2. Student performance will differ based on school management organization when teacher efficacy, approach to instruction, and school goal orientation are factored.
3. The effects of teacher efficacy, both types of classroom approaches to instruction (mastery and performance), and both types of school goal structures (mastery and performance) on student growth scores in math and reading.

## Sample and Participant Selection

The researcher recruited teachers at Midwest School of Choice (MSC) campuses via email. Teachers received an email outlining a description of the study and their request for participation. Participants were assured individual survey results would not be shared with MSC or the management companies in any way. They were also made aware that their participation status in the study would not affect their employment status or income. All published study data looks at collective results and the collective opinions of the campus and SMO; identifiable individual survey data was not shared with the SMO or with MSC leadership.

Select Midwest School of Choice (MSC) school teachers were invited to participate in the study. Approximately 740 elementary teachers work at the MSC campuses. MSC has one primary grade campus, 10 elementary campuses, two campuses with elementary/high school grade levels, and two high schools. One school management organization declined to participate in the study. A second school management organization was excluded from the study as they were in the first year partnering with Midwest School of Choice. Thereby the student performance results from the previous school year would not be attributed to the new organization. Teaching assistants, aides, and non-classroom staff were excluded. Also, teaching staff employed by a newly contracted management company were excluded. A total 411 teachers were invited to participate in the study. Sixty-one teachers responded to the survey. Overall, twenty-six of the participating elementary school teachers were matched to 794 elementary students (Appendix C). Teachers were excluded from the study if they were not matched to a set

of students, if they did not teach during the 2012-13 school year, were in the school but not assigned to classroom with tested students, taught at the high school level, or there may have been issues with the student performance data set. The elementary students were distributed between three school management organizations: Authentic Learning (*n*=143), Ideal Learning (*n*=363), and Integrated Learning (*n*=288). The majority of elementary students were either African-American (59.3%) or Latino (31.1%).

## Materials

### Teacher Survey Information

Teacher classroom goal orientation, self-efficacy, and organizational and demographic information were obtained directly from teachers via an e-mail survey.

**Classroom goal orientation.** Midgley's (2000) Patterns of Adaptive Learning Survey (PALS) for teachers was administered electronically. It is a 29-item scale that includes a five- point rating scale for the response options (Midgley, et al., 2000). All scale items were used. The PALS provides a measurement of classroom goal orientation. Appendix D lists the survey questions by subscale. The PALS has five subscales in its teacher survey measuring performance goal structure of students (PGSS), mastery goal structure of students (MGSS), mastery approach to instruction (AIMAT), performance approach to instruction (AIPAT), and teaching efficacy (PTE). The teacher's belief of the goal structure for their students is measured by PGSS and MGSS, or rather does the teacher believe the school fosters a performance goal structure (PGSS) or a mastery goal structure (MGSS) for the students. The survey also measures the teacher's approach to instruction in terms of a mastery approach to instruction (AIMAT) or performance

approach (AIPAT). Teaching efficacy (PTE) is the teacher's belief that their personal actions can increase student performance. All ratings on the scale were calculated from teacher self-reports. Scale reliability information is noted in Appendix D.

**Self-efficacy scale.** The Teachers' Sense of Self-efficacy (TSES) Long Form Scale (Woolfolk & Hoy, 1990), a 24-item scale, rated on a six-point scale from strongly agree to strongly disagree. The scale items lend to two efficacy factors: teaching efficacy and personal efficacy (Appendix E). The teaching efficacy questions (TSES_TE) ask whether or not the teacher participant believes their educational practices can positively influence student performance. The personal teaching efficacy (TSES_PE) questions relate to the participants belief that home circumstances can outweigh their teaching efforts. Questions 15 and 21 were omitted from analyses based on the authors note that they may not factor load on the personal teaching efficacy. All ratings of efficacy, approach to instruction, and school goal structure are self- reports by the teacher. Scale reliability information is noted in Appendix D.

**Organizational questions.** These questions were meant to determine the awareness teachers have of assessment and test targets. Are they familiar with MSC targets? Did the campus meet the MSC targets last year in reading and math? Did their classroom meet the campus targets last year? What are the current targets for the campus in reading and math for the current school year? Name a quantitative NWEA goal set by your SMO. What goal did you set for your classroom?

**Demographic Information.** Additional information collected from participants included at which campus they taught, number of years teaching, number of years teaching at the campus, and subjects taught during the 2010-11 and 2011-12 school years.

## Archival Data Request

Archival data on student performance and teacher survey data was obtained from Midwest School of Choice (MSC). The researcher requested unidentifiable student data from both formative and summative student assessments. The archival data allowed for the analysis of classroom goal orientation and teacher self-efficacy data with student performance.

**Student performance information.** Student performance data was obtained from Midwest School of Choice. The archival data was provided in the form of a Microsoft Excel spreadsheet with de-identified student information. Variables in the data set include: campus, grade level, spring 2013 NWEA reading growth index and percentile, spring 2013 NWEA math growth index and percentile, free-reduced lunch status, ethnicity, and gender.

**Northwest Evaluation Association- Measures of Academic Progress (NWEA MAPs).** The NWEA MAPs is a computer adaptive assessment designed as both a formative and summative measurement tool for students in kindergarten through eleventh grades. The assessment is measured on an equal interval scale of Rausch Units (RITs) which is scaled and normed for first through $11^{th}$ grades. MSC elementary students are assessed in the fall, winter, and spring of a school year in reading, math, and science.

Growth scores for students are calculated based on testing from the fall to spring terms. Therefore, each student receives a normative growth target for the spring based on their fall scores. Each spring individual target achievement and growth index is reported. Growth indices in reading and math will be used in the current study. This allows for equitable comparisons across grade levels. RIT gains in typically greater in lower grade levels than in higher grade levels; therefore, looking only at gains may inflate the interpretation of growth made at the primary grade level compared to junior high grade levels. For example: a third grade classroom could have a RIT gain from fall to spring of 15 RITs and an eighth grade classroom a gain of 11 points. If the normative growth expected from the third grade is 20, then that classroom would be below normative growth. If the normative growth expected for the eighth grade classroom were 10 points, then the eighth grade classroom would be above normative growth, or have a growth index of one. In comparison, the eighth grade classroom would be the higher performing classroom compared to the third grade even though the third graders had a larger absolute RIT gain. Using growth indices allows for analysis in relation to student performance relative to normative, or expected, growth. The NWEA growth index is the number of RIT points above or below the target growth projection (NWEA Growth Study, 2009).

## Procedure

### Usage Permissions

Permission to use the Teacher Self-Efficacy Scale (TSES) and the Pattern of Adaptive Learning Survey (PALS) was secured from the authors. Approval to use the Midwest School of Choice's teacher population and archival data was obtained from the

MSC Data Monitoring Committee after a formal application submission was approved. Meetings with school management organizations occurred to introduce the purpose of the study and secure permission to contact their employees using their work email. The researcher met with school directors to introduce the purpose of the study and notify them that their teachers may receive an email to participate in a study on teacher self-efficacy and classroom goal orientations.

MSC archival data was given to the researcher on a researcher provided, password protected jump drive. The student performance data was shared as a Microsoft Excel 2007 compatible file containing for each student a dummy student identification number, campus, grade level, spring 2013 NWEA reading growth index and percentile, spring 2013 NWEA math growth index percentile, free-reduced lunch status, ethnicity, and gender.

**Electronic Survey Distribution**

Participant contact information was provided by the MSC. The researcher accessed teacher names, emails, grade level homerooms, and campus name. All elementary teachers were selected to participate in the study and respond to the electronic survey.

Participants were emailed a cover letter as a notification of the study and its purpose and a link to the survey. The survey took approximately 35 minutes to complete. Participants were explained their confidentiality and rights as a participant. Participating teachers agreed to take the PALS, TSES, and answer demographic questions via on online survey tool, SNAP Survey. Only the primary researcher had access to the data.

Participants received three emails throughout the course of the study. First, an initial email was sent asking teachers to participate in the study. One week after receiving the initial email, teachers received a second email survey stating they were selected among their colleagues to participate in a survey. This email contained a SNAP Survey link that routed the participant directly to the informed consent form and survey. Approximately two weeks after the second survey email, teachers who had not yet responded received a final study participation request asking them to complete the survey. Participants were then reminded that they could enter a raffle for a $35 VISA gift card and for a $100 Donor's Choose gift card.

At the close of the study window, the researcher removed all identifiers from the data. Any teacher names and contact information were removed from the data set. Participant names, email address, and computer IP information were removed from the data set.

At the completion of the survey, participants were asked if they would like to enter into a raffle for a $35 gift card or for one $100 gift card through Donor's Choose. If they selected yes, they were routed to a new SNAP Survey site not be linked to the teacher survey data, where they entered their name, school management organization (SMO), and contact information- email address or phone number to be used to contact them if chosen as a winner. Participants in the raffle were told that their identity would no longer be anonymous if they win the raffle prize, since the researcher will need to contact them to award the prize. Those who chose not to participate in the raffle were exited from the survey.

The survey site was open and available to teachers for approximately six weeks. At the close of the data collection period, participants who entered their names for the raffle were sorted by SMO. A randomly selected participant was drawn per SMO for the $35 gift cards. The remaining names were combined and one $35 gift card and one $100 Donor's Choose gift card was awarded. Gift cards were distributed electronically two weeks after the conclusion of the data collection period. Participants who were chosen to receive the gift card were contacted by email, and alerted they had won the raffle with a code to validate Amazon Visa gift card. The Donor's Choose gift fulfillment card was awarded and emailed to the winner in January 2013.

# CHAPTER 4

## DATA ANALYSIS AND RESULTS

The data analysis and results sections are organized into two sections. The first section focuses on the relationships between teacher efficacy and classroom approach to instruction. Specifically, I predict that teachers with higher levels of teacher efficacy will also show higher levels of a mastery approach to classroom instruction, and will show lower levels of a performance approach as compared to teachers with lower teacher efficacy.

The second section uses multi-level modeling to test various aspects of teachers, classrooms, schools, and school management organizations on students' performance in math and reading. First, the potential effects of school management organization on performance were assessed. Second, I tested the effects of teacher efficacy, both types of classroom approaches to instruction (mastery and performance), and both types of school goal structures (mastery and performance) on student growth scores in math and reading. Finally, I tested whether teacher efficacy would interact with both classroom instruction approaches and school goal orientations to instruction. In general, I expected mastery approaches to lead to better performance than performance approaches and that teacher efficacy would be particularly important for performance under mastery orientations.

**Teacher Efficacy and Classroom-School Goal Orientation**

Table 1 reports the means, standard deviations, and correlations between all of the teacher, classroom, and student variables. Teachers self-reported ratings of self efficacy and how they perceived classroom and school goal orientation. The specific hypotheses were that teaching efficacy (TSES_TE, TSES_PE, and PTE_PALS) would be positively correlated with a classroom's mastery approach to instruction (AIMAT) and negatively correlated with a classroom's performance approach to instruction (AIPAT). As can be seen in Table 1, general teaching efficacy (TSES_TE) was not significantly correlated with either approach to instruction variable. However, both measures of persona teaching efficacy (TSES_PE and PTE_PALS) showed significant, positive correlations with using a mastery approach to instruction. Neither measure of personal teaching efficacy showed the expected negative correlations with a performance approach to instruction. Thus, hypothesis one was only partially supported.

A few other interesting correlations appeared in the analysis. First, number of years teaching correlated positively with both personal teaching efficacy measures (though only significantly with PTE_PALS) and also correlated positively with a mastery approach to instruction. As might be expected, teachers who reported higher scores on using mastery approach to instruction in their classrooms also perceived their schools to be more mastery oriented. The same relationship held for teachers reporting higher performance orientation in their classrooms, but they perceived greater levels of both performance and mastery orientations at their schools. It is also interesting to note that reports of greater mastery orientation did not correspond to lower reported levels of

performance orientation. Although usually not significant, the measures of mastery and performance orientation in both classrooms and schools generally were positively related. Finally, at the classroom level, student's growth scores for math and reading were highly positively correlated. However, none of the instruction approach measures correlated significantly with student reading and math scores.

Three different measurement scales in this study measured teacher self-efficacy. A personal teaching efficacy measure from the Patterns of Adaptive Learning Scale (PTE_PALS) was included (Appendix D). Additionally, the Teaching Self-efficacy Survey (TSES) measured a general teaching efficacy (TSES_TE) and personal teaching efficacy (TSES_PE) (Appendix E). The intercorrelations are reported in Table 1. Initial analyses showed no correlation between the TSES_TE teaching efficacy, which asked more general questions related to the influence of a student's home environment on student performance, and the TSES_PE, which questions asked about the teacher's personal efforts to influence student performance, or personal teaching efficacy. Similarly, the PTE_PALS asked questions related to the personal teaching efficacy of the teacher and significantly correlated with TSES_PE personal teaching efficacy variable.

Because of the moderate correlation between the two personal efficacy variables and the potential for multicollinearity, the two variables were combined to create a new variable of personal teaching efficacy (Efficacy_Mean). They were transformed to standard scores and then averaged to create the new score. Because the measure of general teaching efficacy (TSES_TE) showed a near 0 correlation with the more personal measure (TSES_PE), this variable was not included in further analyses.

Table 1. Summary of Intercorrelations, Mean, and Standard Deviations for Scores on the Teaching Self-efficacy Scale (TSES) and the Patterns of Adaptive Learning Survey (PALS), and Number of Years Teaching for Elementary Teacher Participants (N=26)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Years_ Teaching | - | | | | | | | | | |
| 2. Teaching Efficacy- TSES | 0.189 | - | | | | | | | | |
| 3. Personal Efficacy- TSES | 0.375 | 0.026 | - | | | | | | | |
| 4. Teaching Efficacy- PALS | 0.588** | 0.440* | 0.561** | - | | | | | | |
| 5. Performance Approach | -0.256 | -0.088 | 0.312 | -0.142 | - | | | | | |
| 6. Mastery Approach | 0.398* | -0.136 | 0.556** | 0.533** | 0.142 | - | | | | |
| 7. Performance Goal Structure | -0.072 | -0.006 | 0.271 | 0.055 | 0.441* | 0.318 | - | | | |
| 8. Mastery Goal Structure | -0.03 | -0.052 | 0.474* | 0.361 | 0.484* | 0.550** | 0.182 | - | | |
| 9. Math Score | 0.171 | 0.088 | -0.131 | 0.192 | -0.326 | 0.035 | -0.062 | -0.267 | - | |
| 10. Reading Score | 0.303 | 0.076 | -0.053 | 0.259 | -0.283 | 0.047 | -0.038 | -0.267 | .934** | - |
| *M* | 3.540 | 3.769 | 4.598 | 3.795 | 2.881 | 3.711 | 3.397 | 3.385 | 14.849 | 13.509 |
| *SD* | 1.581 | 0.582 | 0.477 | 0.477 | 0.478 | 0.607 | 0.67 | 0.699 | 7.609 | 7.535 |
| N | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

*Note.* For all scales, higher scores are more indicative of more extreme responding in the direction of the construct assessed. Years_Teaching= Number of years teaching, Mastery Approach and Performance Approach to Instruction, Teaching Efficacy- Personal teaching efficacy from the Patterns of Adaptive Learning Survey. Math score and reading score was the teacher's classroom mean in each subject.

**Modeling Results for Student Performance in Math and Reading**

A multilevel model was used to predict math and reading subject growth as a function of teacher self-efficacy and classroom goal orientation. As proposed by Luke (2004) and Gelman, Carlin, Stern, and Rubin (1995), the model of fit was assessed using the Akaike Information Criterion (AIC) and Schwarz's Bayesian Information criterion (BIC). The AIC and BIC will determine the best model to use in creating the multilevel model for analyses; the smaller the AIC and BIC the better the model (Luke, 2004).

Table 2 summarizes the results of the model tests for growth scores in reading and math for elementary school children. A two level model with student and teacher as the two levels of analysis was used. The ideal number of participants in each level for a multilevel model is 25-30. Because there is only four school management organizations (SMOs) at Midwest School of Choice (MSC) and one of which did not participate, SMO could not be included as its own level. The model used included SMOs and teacher as second level variables and students as first-level variables. First, models containing only main effects (Model I) were calculated for both math and reading growth scores. Second, models including two-way interactions with teacher efficacy and the various school and classroom goal orientation variables (Model II) were tested. Based on the AIC and BIC values, Model II provided better fits for both math and reading growth scores. Because the variables were not centered, the main effects are interpreted using Model I results.

First, neither contrast assessing the effects of SMO achieved significance for either math or reading growth scores. Thus, differences among the SMOs appear not to influence learning in either area among elementary students. For reading growth scores,

increases in teacher efficacy were associated with higher growth scores. The same pattern emerged for math growth scores but was not significant. Contrary to predictions, as teachers reported higher levels of a mastery approach to instructions, growth scores in both math and reading significantly declined. The same patterns of results were found for school goal orientation: teacher ratings of the degree to which their school used a mastery goal structure were negatively related to math and reading growth scores. Based on past research, a mastery approach both at the classroom and school level were expected to lead to higher, rather than lower, student performance. No relationship was found between either math or reading growth scores and teachers' ratings of using a performance orientation in their classroom. However, ratings of a performance goal structure at the school level were negatively related to student growth scores, but only reached significance for reading.

Model II tested four interaction effects for both reading and math growth scores: teacher efficacy by mastery classroom approach to instruction, teacher efficacy by performance classroom approach to instruction, teacher efficacy by mastery goal orientation for the school, and teacher efficacy by performance goal orientation for the school. For reading growth scores, all four interactions were significant. For math growth scores, only the teacher efficacy by mastery goal orientation for the school failed to reach significance. Each of the significant interactions was explored further with a complete set of simple slopes analyses comparing the slopes for teacher efficacy at each level of the other variable.

Table 2. Relationship Between Goal Structure, Goal Orientation, and Teacher Efficacy with Interactions on Elementary Student Performance Controlling for School management Organization (SMO) Using Multilevel Modeling

| | Math Gains | | Reading Gains | |
|---|---|---|---|---|
| | Model 1 | Model 2 | Model 1 | Model 2 |
| Variable | B (SE B) | B (SE B) | B (SE B) | B (SE B) |
| Intercept | 47.289** (6.050) | 68.075** (8.512) | 46.508** (6.492) | 77.962** (8.900) |
| Mastery Approach | -4.883** (1.239) | -6.760** (1.413) | -5.800** (1.321) | -9.559** (1.533) |
| Performance Approach | .964 (1.397) | 12.458** (1.423) | .067 (1.490) | 12.700** (2.050) |
| Mastery Goal Structure | -3.248** (.785) | -6.199** (.931) | -3.217** (.839) | -6.805** (1.017) |
| Performance Goal Structure | -1.902 (1.003) | -12.713** (1.423) | -.243** (1.068) | -12.759** (1.540) |
| Efficacy_Mean | 1.091 (.609) | 6.708 (5.331) | 1.971* (.651) | -5.254 (5.790) |
| SMO1 | 8.766 (3.801) | 15.926 (7.979) | 7.902 (4.221) | 18.023 (7.784) |
| SMO2 | -1.891 (2.640) | -6.707 (5.704) | -1.063 (2.943) | -6.126 (5.544) |
| Efficacy_Mean*AIMAT | | -8.936** (1.175) | | -9.773** (1.285) |
| Efficacy_Mean*AIPAT | | 6.763** (1.779) | | 10.207** (1.934) |
| Efficacy_Mean*MGSS | | 2.395 (1.784) | | 7.068** (1.936) |
| Efficacy_Mean*PGSS | | -10.919** (1.378) | | -12.958** (1.493) |
| Akaike's Information Criterion (AIC) | 5543.274 | 5372.06 | 5573.602 | 5433.332 |
| Schwartz's Bayesian Criterion (BIC) | 5552.488 | 5381.278 | 5582.81 | 5442.529 |

Note. Entries are unstandardized regression coefficients and standard errors.
AIMAT= Mastery Approach to Instruction, AIPAT= Performance Approach to Instruction,
MGSS= Mastery Goal Structure for School, PGSS= Performance Goal Structure for School
Efficacy_Mean= Personal Teaching Efficacy, TSES_TE= General Teaching Efficacy
*$p$< .05, **p<.01

The results of the simple slopes analyses for the teacher efficacy by mastery classroom orientation interaction for math growth scores are presented in Figure 3 and Table 3. As shown in the figure, the effects of mastery classroom orientation are more pronounced when teacher efficacy is low, as compared to high. Interestingly, teacher efficacy has a strong positive association with math growth scores at the lowest levels of mastery classroom orientation. When mastery classroom orientation is reported as high, teacher efficacy has a negative association with math growth scores. Thus, teacher efficacy seems most important when mastery classroom orientation is low. The exact same pattern was found for reading growth scores, as shown in Figure 4 and Table 4.

Figure 3. Interaction between Personal Teaching Efficacy and Mastery Approach to Instruction (AIMAT) on Math Gains

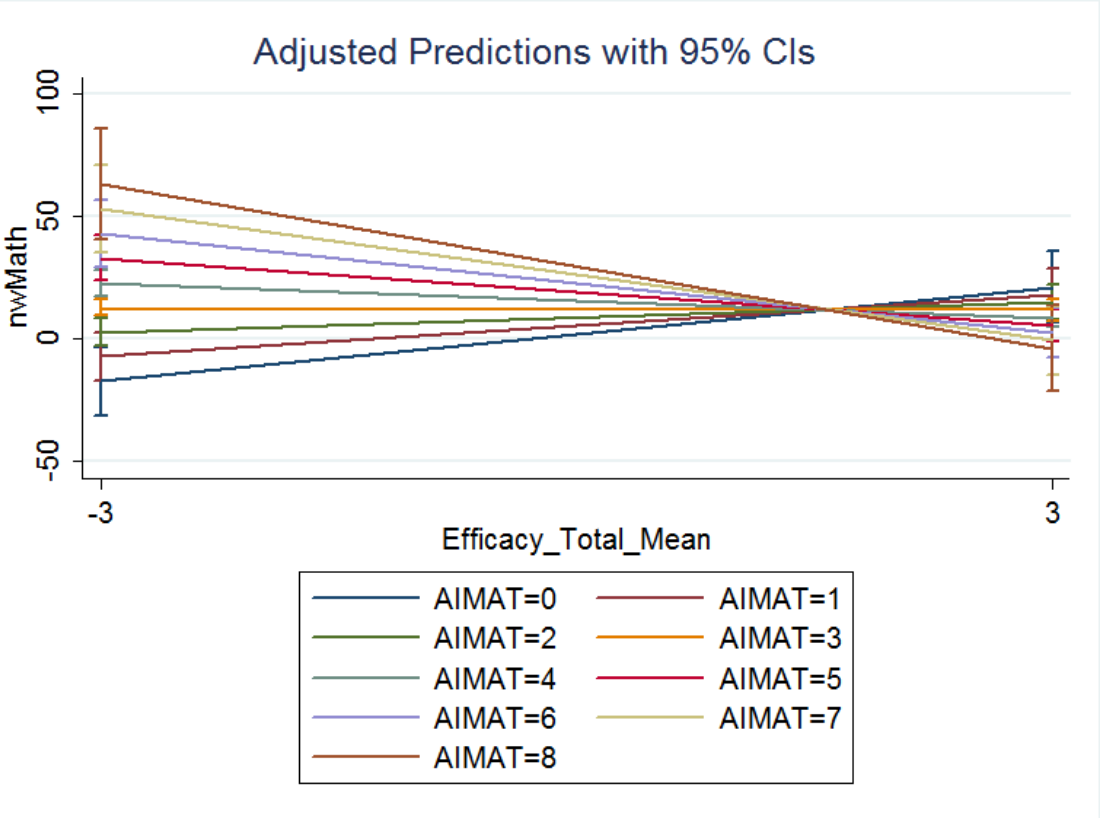


Table 3: Simple Slopes for the Interaction between Personal Efficacy and Mastery Approach to Instruction (AIMAT) on Math Gains

| | Delta-method | | | | | |
|---|---|---|---|---|---|---|
| | dy/dx | Std. Err. | t | P>t | [95% Conf. | Interval] |
| Efficacy_Total_Mean | | | | | | |
| 1 | 6.41 | 2.37 | 2.70 | 0.01 | 1.75 | 11.07 |
| 2 | 4.47 | 1.70 | 2.63 | 0.01 | 1.13 | 7.81 |
| 3 | 2.53 | 1.07 | 2.35 | 0.02 | 0.42 | 4.64 |
| 4 | 0.58 | 0.63 | 0.92 | 0.36 | -0.66 | 1.83 |
| 5 | -1.36 | 0.80 | -1.69 | 0.09 | -2.94 | 0.22 |
| 6 | -3.30 | 1.37 | -2.41 | 0.02 | -5.99 | -0.61 |
| 7 | -5.24 | 2.03 | -2.59 | 0.01 | -9.22 | -1.26 |
| 8 | -7.19 | 2.71 | -2.65 | 0.01 | -12.50 | -1.87 |
| 9 | -9.13 | 3.40 | -2.69 | 0.01 | -15.80 | -2.45 |

Figure 4. Interaction between Personal Teaching Efficacy and Mastery Approach to Instruction (AIMAT) on Reading Gains

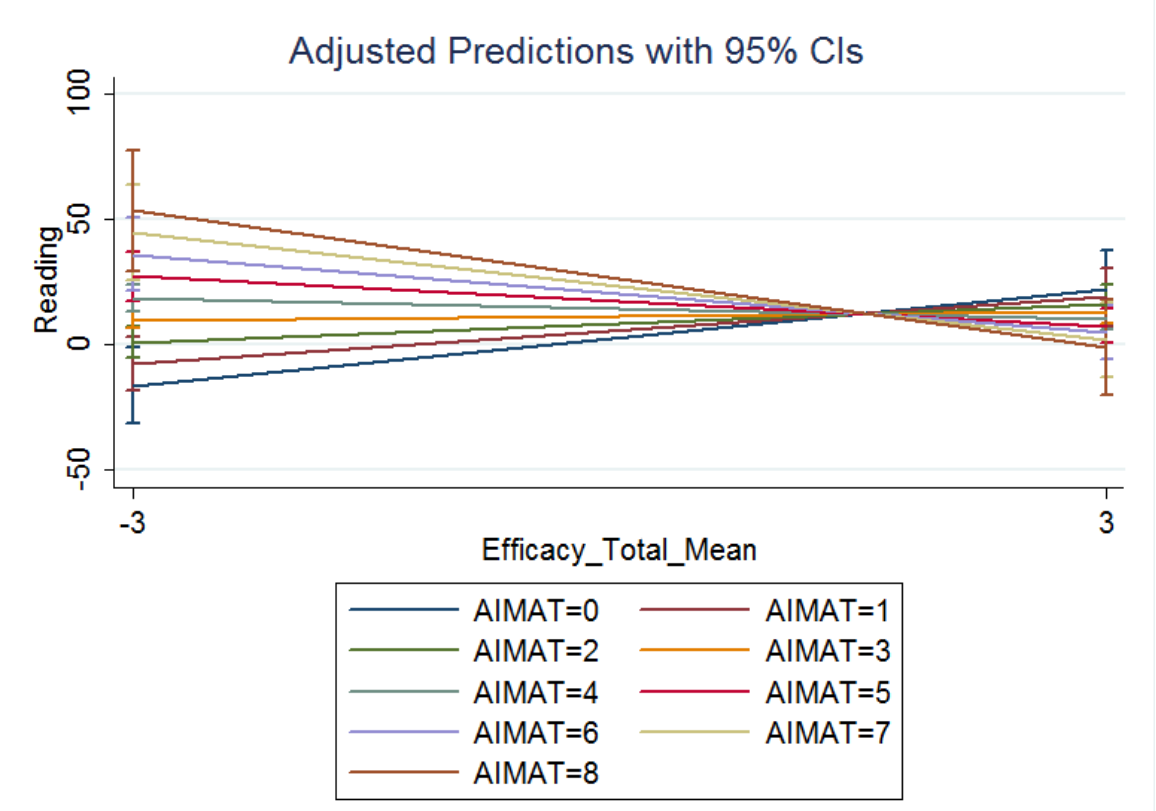


Table 4. Simple Slopes for the Interaction between Personal Teaching Efficacy and Mastery Approach to Instruction (AIMAT) on Reading Gains

| | Delta-method | | | | | |
|---|---|---|---|---|---|---|
| | dy/dx | Std. Err. | t | P>t | [95% Conf. | Interval] |
| Efficacy_Total_Mean | | | | | | |
| 1 | 6.41 | 2.37 | 2.70 | 0.01 | 1.75 | 11.07 |
| 2 | 4.47 | 1.70 | 2.63 | 0.01 | 1.13 | 7.81 |
| 3 | 2.53 | 1.07 | 2.35 | 0.02 | 0.42 | 4.63 |
| 4 | 0.58 | 0.63 | 0.92 | 0.36 | -0.66 | 1.83 |
| 5 | -1.36 | 0.80 | -1.69 | 0.09 | -2.94 | 0.22 |
| 6 | -3.30 | 1.37 | -2.41 | 0.02 | -5.99 | -0.61 |
| 7 | -5.24 | 2.03 | -2.59 | 0.01 | -9.22 | -1.26 |
| 8 | -7.19 | 2.71 | -2.65 | 0.01 | -12.50 | -1.87 |
| 9 | -9.13 | 3.40 | -2.69 | 0.01 | -15.80 | -2.45 |

The results of the simple slopes analyses for the teacher efficacy by performance classroom orientation interaction for math growth scores are presented in Figure 5 and Table 5. Once again, the figure shows that the effects of classroom orientation are larger when teacher efficacy is low as compared to when it is high. Contrary to what was found for a mastery classroom approach, teacher efficacy had a strong positive relationship to math growth scores when teachers reported high levels of a performance approach to their classrooms. This relationship was weaker to non-existent for moderate ratings of taking a performance approach, and was significantly negative when performance approach ratings were at their lowest levels. Thus, teacher efficacy was positively related to performance only when teachers report having a performance approach to their classrooms. An extremely similar pattern of results were found for reading growth scores (see Figure 6 and Table 6).

Figure 5. Interaction between Personal Teaching Efficacy and Performance Approach to Instruction (AIPAT) on Math Gains

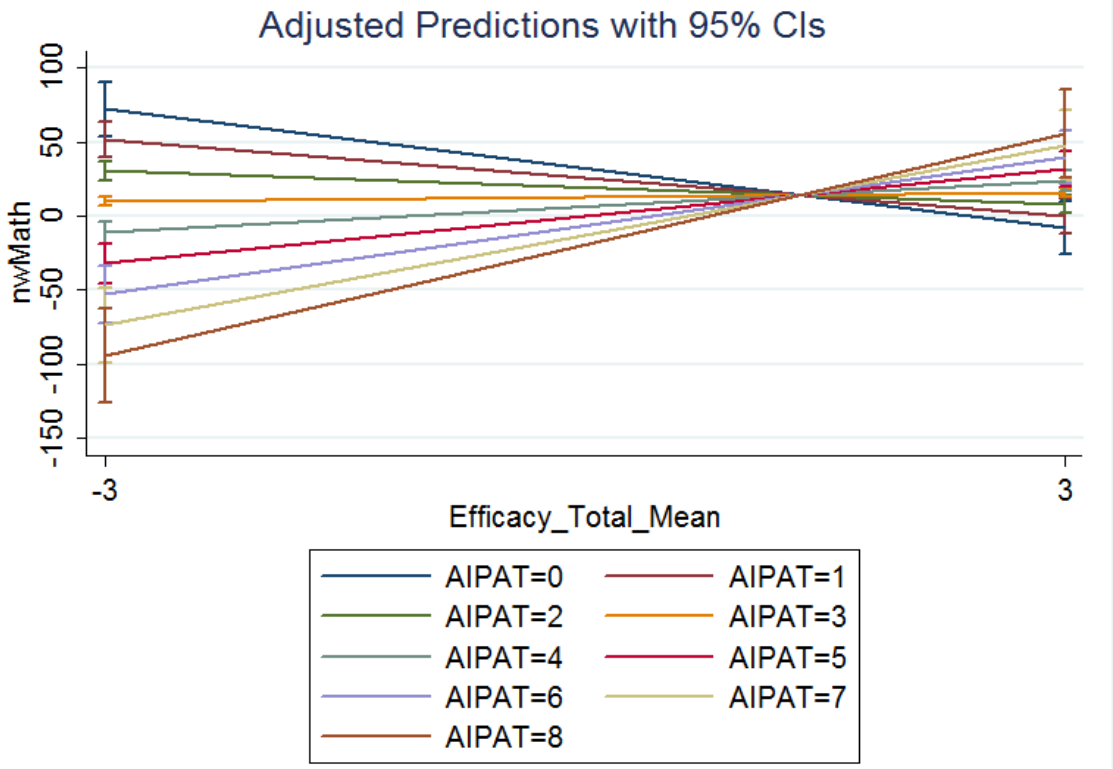



Table 5: Simple Slopes for the Interaction between Personal Teaching Efficacy and Performance Approach to Instruction (AIPAT) on Math Gains

| | Delta-method | | | | | |
|---|---|---|---|---|---|---|
| | dy/dx | Std. Err. | t | P>t | [95% Conf. | Interval] |
| Efficacy_Total_Mean | | | | | | |
| 1 | -12.24 | 3.11 | -3.93 | 0.00 | -18.34 | -6.13 |
| 2 | -7.64 | 2.08 | -3.67 | 0.00 | -11.73 | -3.55 |
| 3 | -3.05 | 1.09 | -2.79 | 0.01 | -5.19 | -0.90 |
| 4 | 1.55 | 0.48 | 3.24 | 0.00 | 0.61 | 2.49 |
| 5 | 6.14 | 1.21 | 5.09 | 0.00 | 3.78 | 8.51 |
| 6 | 10.74 | 2.21 | 4.87 | 0.00 | 6.41 | 15.07 |
| 7 | 15.33 | 3.24 | 4.74 | 0.00 | 8.98 | 21.69 |
| 8 | 19.93 | 4.27 | 4.66 | 0.00 | 11.54 | 28.32 |
| 9 | 24.52 | 5.31 | 4.62 | 0.00 | 14.09 | 34.95 |

Figure 6. Interaction between Personal Teaching Efficacy and Performance Approach to Instruction (AIPAT) on Reading Gains

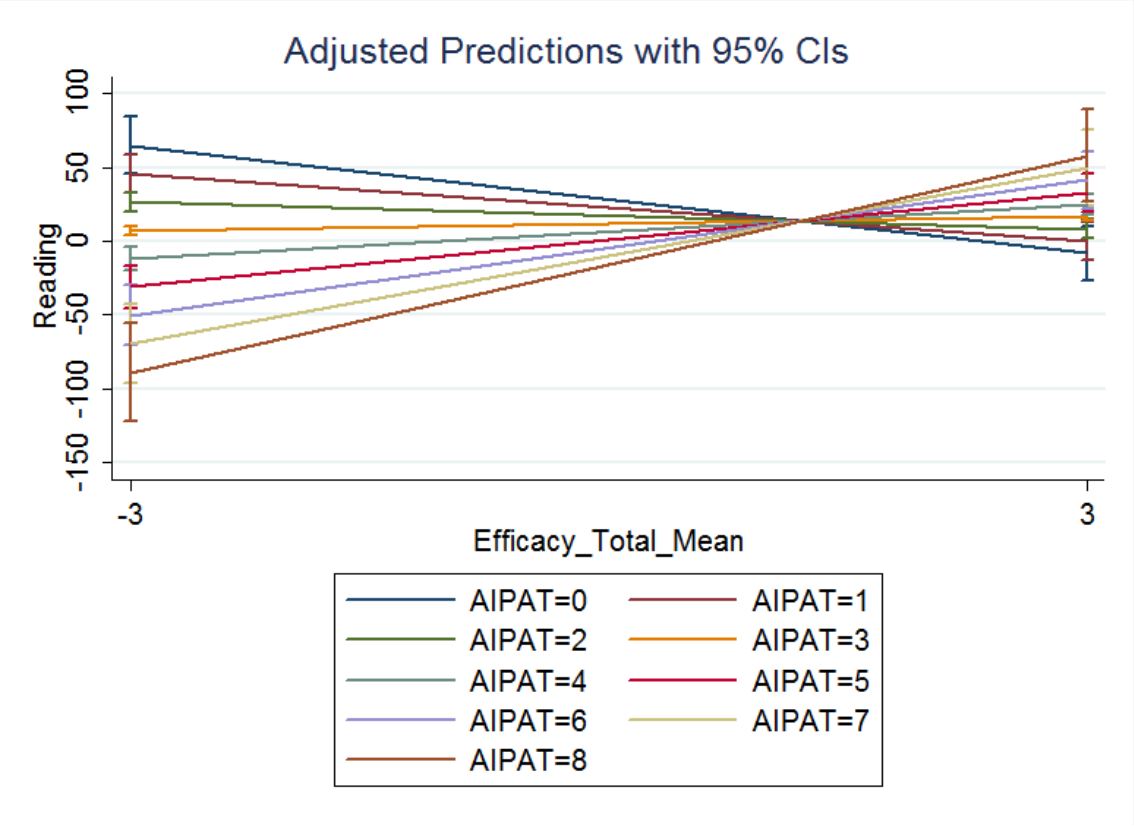



Table 6. Simple Slopes for the Interaction between Personal Teaching Efficacy and Performance Approach to Instruction (AIPAT) on Reading Gains

| | Delta-method | | | | | |
|---|---|---|---|---|---|---|
| | dy/dx | Std. Err. | t | P>t | [95% Conf. | Interval] |
| Efficacy_Total_Mean | | | | | | |
| 1 | -12.24 | 3.11 | -3.93 | 0.00 | -18.34 | -6.13 |
| 2 | -7.64 | 2.08 | -3.67 | 0.00 | -11.73 | -3.55 |
| 3 | -3.05 | 1.09 | -2.79 | 0.01 | -5.19 | -0.90 |
| 4 | 1.55 | 0.48 | 3.24 | 0.00 | 0.61 | 2.49 |
| 5 | 6.14 | 1.21 | 5.09 | 0.00 | 3.78 | 8.51 |
| 6 | 10.74 | 2.21 | 4.87 | 0.00 | 6.41 | 15.07 |
| 7 | 15.33 | 3.24 | 4.74 | 0.00 | 8.98 | 21.69 |
| 8 | 19.93 | 4.27 | 4.66 | 0.00 | 11.54 | 28.32 |
| 9 | 24.52 | 5.31 | 4.62 | 0.00 | 14.09 | 34.95 |

Three of the four interactions involving teacher efficacy and the goal orientations (mastery or performance) reported for the schools reached significance. However, their patterns were opposite those found when interpreting the respective interactions for approach (mastery of performance) at the classroom level. The simple slopes analyses for the teacher efficacy by performance goal orientation for the school on math growth scores are reported in Figure 7 & Table 7. Similar to earlier analyses, the effect of goal orientation was smaller when teacher efficacy was high as opposed to low. However, contrary to what was found when teacher efficacy interacted with classroom-level ratings of a performance approach, teacher efficacy was positively related to math growth scores when ratings of the school's performance goal orientation were low. When ratings of the school's performance goal orientation were high, higher levels of teacher efficacy were associated with lower math growth scores. A very similar pattern was found for students' growth scores in reading (See Figure 8 & Table 8).

Figure 7. Interaction between Personal Teaching Efficacy and Performance Goal Structure (PGSS) on Math Gains

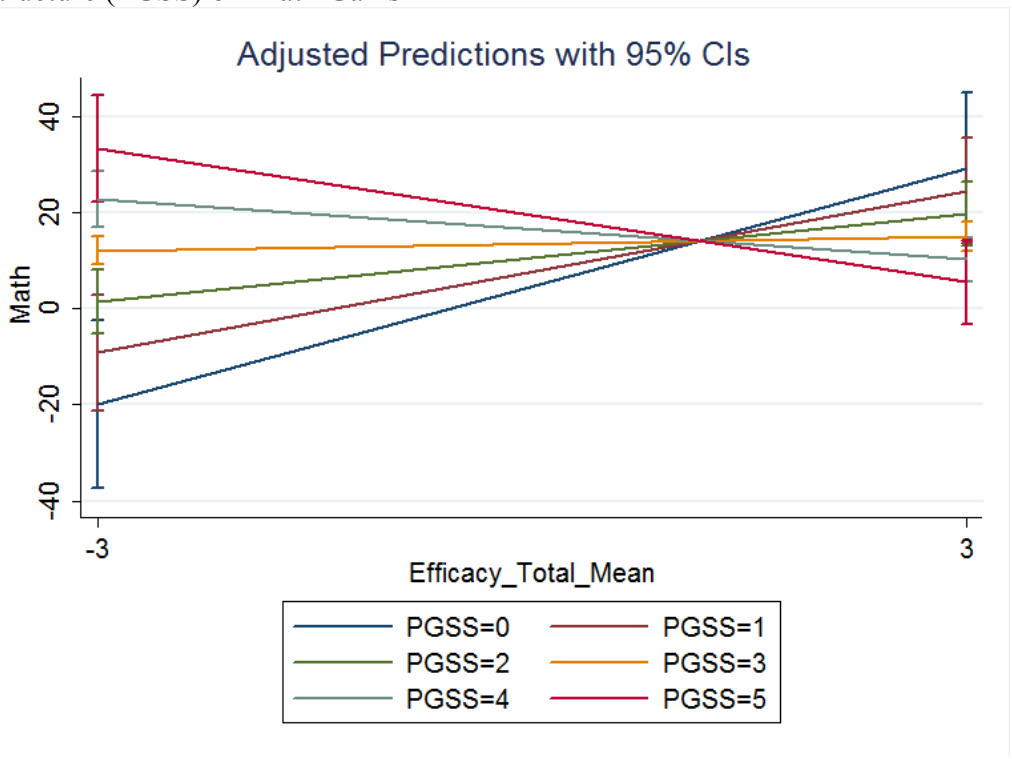



Table 7. Simple Slopes for the Interaction between Personal Teaching Efficacy and Performance Goal Structure (PGSS) on Math Gains

| | Delta-method | | | | | |
|---|---|---|---|---|---|---|
| | dy/dx | Std. Err. | t | P>t | [95% Conf. | Interval] |
| Efficacy_Total_Mean | | | | | | |
| 1 | 8.17 | 2.73 | 2.99 | 0.00 | 2.81 | 13.53 |
| 2 | 5.61 | 1.90 | 2.96 | 0.00 | 1.89 | 9.33 |
| 3 | 3.05 | 1.09 | 2.79 | 0.01 | 0.91 | 5.19 |
| 4 | 0.49 | 0.49 | 1.00 | 0.32 | -0.47 | 1.45 |
| 5 | -2.07 | 0.86 | -2.42 | 0.02 | -3.76 | -0.39 |
| 6 | -4.64 | 1.64 | -2.83 | 0.01 | -7.85 | -1.42 |

Figure 8. Interaction between Personal Teaching Efficacy and Performance Goal Structure (PGSS) on Reading Gains

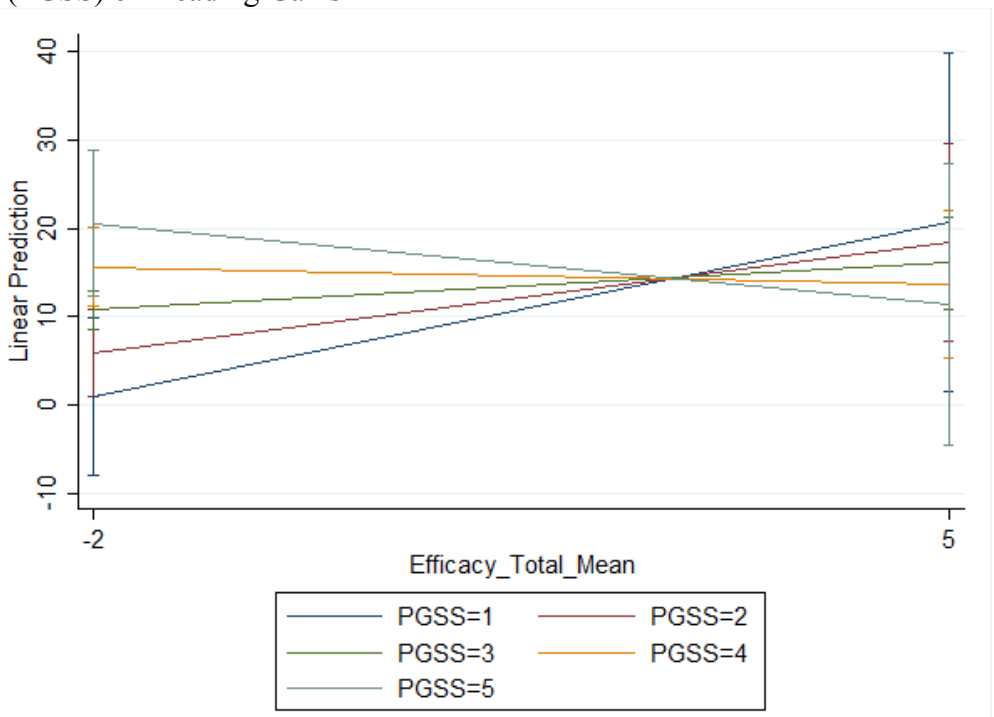



Table 8. Simple Slopes for the Interaction between Personal Teaching Efficacy and Performance Goal Structure (PGSS) on Reading Gains

| Efficacy_Total_Mean | dy/dx | Std. Err. | t | P>t | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| 1 | 2.82 | 1.99 | 1.42 | 0.16 | -1.08 | 6.72 |
| 2 | 1.79 | 1.14 | 1.56 | 0.12 | -0.46 | 4.03 |
| 3 | 0.76 | 0.52 | 1.47 | 0.14 | -0.26 | 1.77 |
| 4 | -0.27 | 0.91 | -0.30 | 0.76 | -2.05 | 1.50 |
| 5 | -1.31 | 1.72 | -0.76 | 0.45 | -4.69 | 2.08 |

A similarly perplexing pattern was found when analyzing the simple slopes for the teacher efficacy by mastery goal orientation for the school on students' reading growth scores (see Figure 9 and Table 9). Once again, school goal orientation effects were smaller when teacher efficacy was high. However, when ratings of the school's

mastery goal orientation were high, teacher efficacy had a positive association with reading growth scores. When ratings of the school's mastery goal orientation were low, the reverse was found: teacher efficacy had a negative association with reading growth scores. This interaction did not reach significance for students' math growth scores.

Figure 9. Interaction between Personal Teaching Efficacy and Mastery Goal Structure (MGSS) on Reading Gains

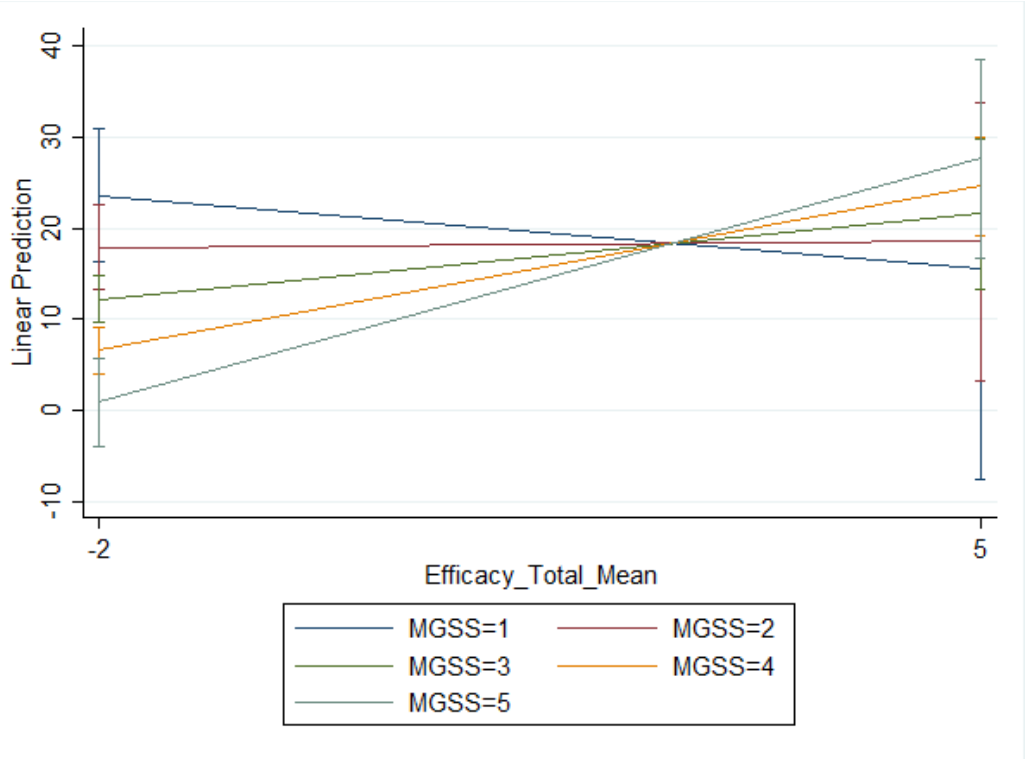



Table 9. Simple Slopes of the Interaction between Personal Teaching Efficacy and Mastery Goal Structure (MGSS) on Reading Gains

| Efficacy_Total_Mean | dy/dx | Std. Err. | t | P>t | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| 1 | -1.15 | 2.12 | -0.54 | 0.59 | -5.31 | 3.01 |
| 2 | 0.09 | 1.40 | 0.07 | 0.95 | -2.65 | 2.83 |
| 3 | 1.34 | 0.75 | 1.79 | 0.08 | -0.13 | 2.80 |
| 4 | 2.58 | 0.57 | 4.55 | 0.00 | 1.47 | 3.69 |
| 5 | 3.82 | 1.11 | 3.44 | 0.00 | 1.64 | 6.01 |

# CHAPTER 5

# DISCUSSION

The current study attempted to further our understanding of the relationships of school, classroom, and teacher variables to student performance. Specifically, the study attempted to assess how school management approaches and teachers impressions of the goal orientations of their classrooms and schools, and their impressions of their own teaching ability, would affect student improvement in math and reading. Past research has shown that self efficacy is an important aspect of performance in general (Bandura, 1977) and for teacher performance (Hoy, 2000). In addition, a fair amount of research has shown that goal orientation (mastery vs. performance) can influence students learning (Elliot, 1999; Meece et al., 2006). However, very little research has attempted to explain how teacher self efficacy and goal orientation interact to affect student performance. In addition, as more specialty schools (i.e., schools noted for specific orientations or subject domains) become more common, research is needed to see whether student performance is related to such school management characteristics.

Two sets of analyses were used to address the aforementioned issues. First, teacher ratings of their self efficacy, their classroom orientation, and their school's goal orientation were correlated to look for potential relationships. It was predicted that teachers with higher levels of self efficacy would be more likely to use a mastery approach, and less likely to use a performance approach, in their classrooms. This

prediction received mixed support. Teacher efficacy was positively correlated with teacher's perceptions of the degree to which they used a mastery orientation in their classroom. In addition, teachers with higher levels of self efficacy also reported that their schools were more mastery oriented. However, higher levels of teacher self efficacy were not associated with lower levels of performance orientation at either the classroom or school level. In addition, teacher ratings of their classroom or school mastery orientation were not negatively correlated with their ratings or classroom or school performance orientation. Thus, at least from the teachers' perspectives, these two orientations or approaches are not mutually exclusive. In fact, teachers' ratings of their mastery approach in their classroom showed a significant positive correlation with their ratings of their school's performance orientation.

A second set of analyses used multi-level modeling to assess teacher and school-level effects on student performance. These results showed no effects of school management organization on either student growth scores for math or reading. Thus, it appears that, at least for these specific organizational structures, students performed equally well in the basic areas (reading and math) regardless of the specific type of school. The results also showed that teacher efficacy is positively related to student performance. However, contrary to predictions, student performance was negatively related to both a mastery approach in the classroom and a mastery goal orientation at the school. Most past research has shown positive effects on student learning for mastery approaches to teaching (Meece et al., 2006). Student performance was unrelated to a

performance classroom approach, but was negatively related to a performance orientation for the school.

All of these main effects were qualified by interactions between teacher efficacy and the various measures of classroom and school goal orientation. However, the pattern of results across the various interactions does not provide for a clear or consistent interpretation. One consistent finding was that classroom and school goal orientation were less influential when teacher efficacy was high. This could imply that highly skilled teachers (assuming their efficacy beliefs are accurate) can help students improve regardless of their approach or school context. However, efficacy had different effects on performance depending on the classroom and school goal orientations.

Focusing on the classroom approaches, teacher efficacy was associated with improved performance when a performance approach was prevalent. Thus, when teachers reported a high level of a performance approach, the greater their reported efficacy, the greater the student improvement. When they reported low usage of a performance approach, teacher efficacy was negatively related to performance. The opposite was found in relation to a mastery approach in the classroom. When the use of a mastery approach was rated high, teacher efficacy was negatively associated with student performance. However, when mastery approach ratings were low, high efficacy ratings were associated with improved performance. This pattern is exactly opposite of what was initially predicted, which was that teacher efficacy would be more important for classrooms with a mastery approach.

It is also difficult to reconcile the findings for classroom goal approach with the results for school goal orientation. Teacher efficacy was positively related to

performance when a performance goal orientation was rated very low. When performance goal orientation was rated high, teacher efficacy was negatively related to student performance. This pattern is opposite the one found for a performance classroom approach. The pattern for the teacher efficacy by school-level mastery goal orientation is also opposite of what was found for a mastery classroom approach. When the school mastery goal orientation was rated high, teacher efficacy and performance were positively related, but when the mastery goal orientation was rated low, they were negatively related.

Although purely speculative, it is possible that teachers with higher efficacy scores interpreted the items for the four goal orientation scales somewhat differently than did teachers with lower efficacy ratings. Since teacher efficacy was related to teacher tenure, it is possible that teachers with more experience view their classrooms and schools in ways different from less experienced teachers. But without further evidence of this, or more objective measures of both school and classroom goal orientation, it is difficult to come to a clear interpretation of the current findings.

## Study Limitations and Future Research

There were several limitations of the study including, limited school management organization (SMO) participation and lack of data on teacher training. The data set did not include all of the SMOs associated with the school. One SMO did not agree to participate and another SMO had been hired by the school less than a year and were excluded from the study. Three SMOs participated in the study, of which one also served elementary and high school students. Perhaps with the inclusion of all SMOs in the future, there may be significant differences between the SMOs in terms of teacher efficacy and

goal structures. Also, the inclusion of all SMOs would allow for a multilevel model of analyses at the high school level.

Another limitation of the current research involved the operational definitions of classroom and school goal orientations. These variables were measured only by teacher ratings and not by actual teacher or school based behaviors or policies. Although these measures have been used in previous research, it is not clear that teachers are always accurate when rating either their classroom approach or the orientation of their school. Future research may try to include other measures of these constructs from students, administrators, and/or outside observers to help insure the construct validity of the measures.

Given the study's limitations, future research should include the study of multiple management companies within an organization serving both elementary and high school students. Additional studies could also include data on teacher professional development to determine the extent of the classroom goal structures of mastery and performance approach to instruction as being subject level variables. Research should investigate if the approaches to instruction are learned behaviors through trainings or if they are solely dispositional characteristics of the teacher. Training teachers to adhere to the most beneficial classroom goal structure could have a significant impact on student performance.

## Implications and Conclusion

In terms of social psychological application, the study focuses on the role multiple levels of accountability plays on a teacher's sense of self-efficacy and how they design their classroom goal structures. The present results are consistent with some previous

research on teacher self-efficacy and classroom goal structures. Additionally, it adds to the body of literature relevant to low-income and minority student learners. Given the majority of the teachers have a different ethnic and economic background than their students, the research did not indicate teachers as having a low self-efficacy in being able to positively change their students' academic performance. The data on classroom goal structures implies it can play a positive role in student performance in a performance driven school and system.

At the broader educational level, this research speaks to the impact teacher's self-efficacy and teacher classroom goal structures and their impact on student academic achievement. Student achievement results for MSC have suggested that their performance approach to target and goal setting is having a positive impact on improving student performance. At the end of the 2010-2011 school year, MSC closed the achievement gap in reading grades first through eighth and math in grades first through fourth and sixth through eighth in the aggregate. Of the 11 MSC elementary campuses, three campuses closed the achievement gap across first through eighth grade levels in reading and two campuses closed the achievement gap in math.[1] With the changing landscape of education and potential movement towards privatization of schools, school type and structure may eventually become factors in research on student performance differences within a school system.

[1] Closing the achievement gap is defined by the MSC grade level mean in reading and math being equal to or greater than the national NWEA normative mean for each grade level and subject area. The MSC sample did not include campuses that opened in the 2010-2011 school year; it only included elementary campuses that were at least three years old.

# APPENDIX A

# MIDWEST SCHOOL OF CHOICE

# CONTRACT TABLES WITH PERFORMANCE STANDARDS FOR ELEMENTARY AND HIGH SCHOOLS

Please note that the following partial scores were applied to NWEA scores:

- Met or exceeded MSC NWEA Growth target: 2 points
- Met or exceeded NWEA Normative Growth Target: 1 points
- 60+% of students met or exceeded NWEA growth target: 1 point
- 50-59% of students met or exceeded NWEA growth target: .5 points

| **Example Elementary Campus Performance Standards** | **Partial Score** |
|---|---|
| 1. Meet or exceed the Target NWEA RIT Math Score [Target 224] | 2 |
| 2. Meet or exceed the Target NWEA RIT Reading Score [Target 216] | 2 |
| 3. MSC % Meeting Target NWEA R.I.T Math Score [Target 60%] | 1 |
| 4. MSC % Meeting Target NWEA R.I.T Reading Score [Target 60%] | 1 |
| 5. Student performance on ISAT as compared to relevant CPS campuses | 2 |
| 6. Parent satisfaction [Target 85%] | 1 |
| 7. Student retention [Target 93%] | 1 |
| Total | 10 |

| Example High School Performance Standards | Partial Score |
|---|---|
| 1. Student Gain Scores on Composite ACT [Target 2.0] | 1 |
| 2. Student Gain Scores on Composite Plan to ACT [Target 1.0] | 1 |
| 3. Student Gain Scores on Composite Explore to PLAN [Target 1.3] | 1 |
| 4. Composite ACT for 12th grade students [Target 17.7] | 1 |
| 5. PSAE composite % meets/exceeds for 12th grade students [Target 40%] | 2 |
| 6. 4-year cohort graduation rate [Target 90%] | 1 |
| 7. College placement [Target 88%] | 1 |
| 8. Student retention [Target 93%] | 1 |
| 9. Parent satisfaction [Target 85%] | 1 |
| Total | 10 |

# APPENDIX B

# TEACHER DEMOGRAPHIC INFORMATION

**How many years have you been teaching?**

| | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| Valid | 0-1 year | 6 | 9.8 | 10.0 |
| | 2 years | 10 | 16.4 | 26.7 |
| | 3 years | 5 | 8.2 | 35.0 |
| | 4 years | 11 | 18.0 | 53.3 |
| | 5 years or more | 28 | 45.9 | 100.0 |
| | Total | 60 | 98.4 | |
| Missing | | 1 | 1.6 | |
| Total | | 61 | 100.0 | |

**How long have you taught at your current MSC campus?**

| | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| Valid | 0-1 year | 15 | 24.6 | 24.6 |
| | 2 years | 16 | 26.2 | 50.8 |
| | 3 years | 7 | 11.5 | 62.3 |
| | 4 years | 5 | 8.2 | 70.5 |
| | 5 years or more | 18 | 29.5 | 100.0 |
| | Total | 61 | 100.0 | |

**What grade level(s) do you teach?**

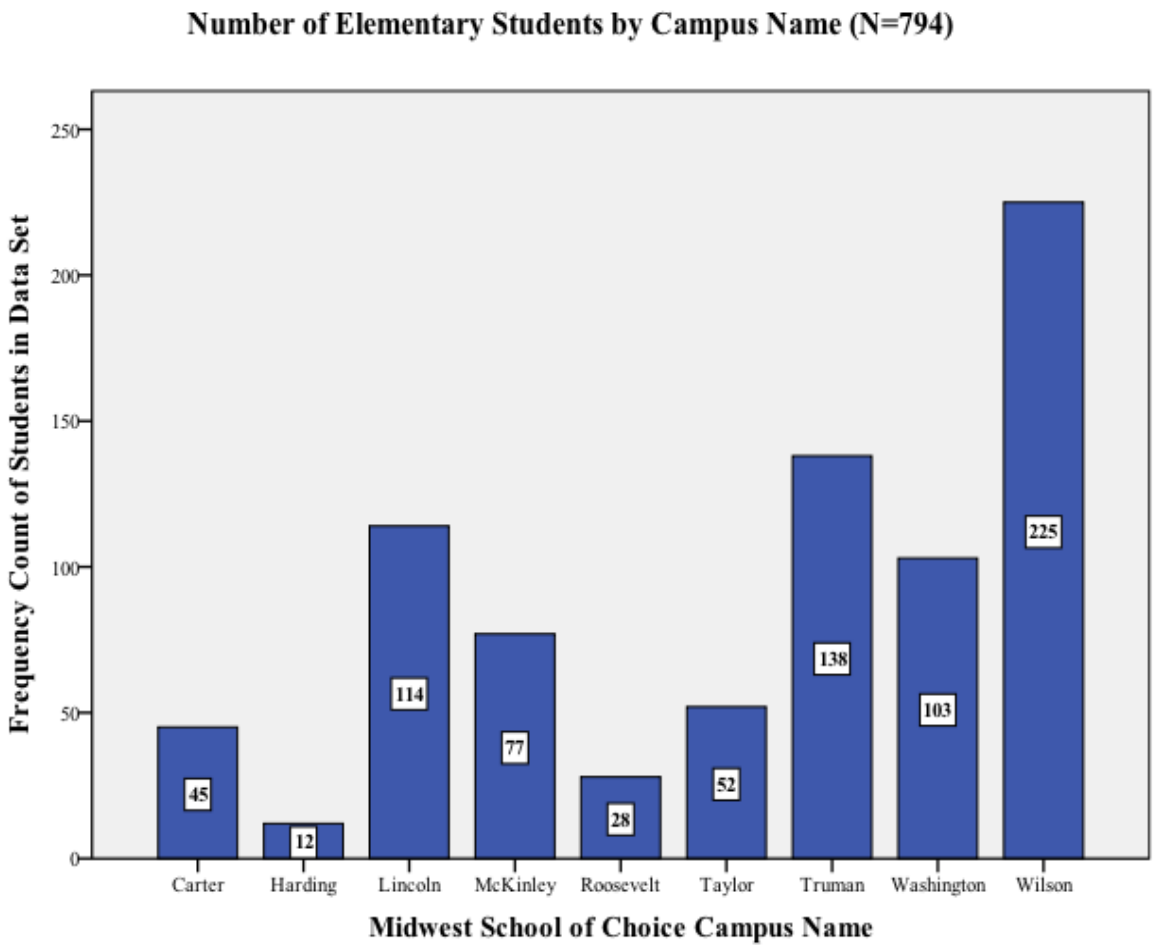
| | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| Valid | K-2nd | 16 | 26.2 | 27.6 |
| | 3rd-5th | 11 | 18.0 | 46.6 |
| | 6th-8th | 11 | 18.0 | 65.5 |
| | 9th-12th | 20 | 32.8 | 100.0 |
| | Total | 58 | 95.1 | |
| Missing | | 3 | 4.9 | |
| Total | | 61 | 100.0 | |

**Currently, at which MSC campus do you teach?**

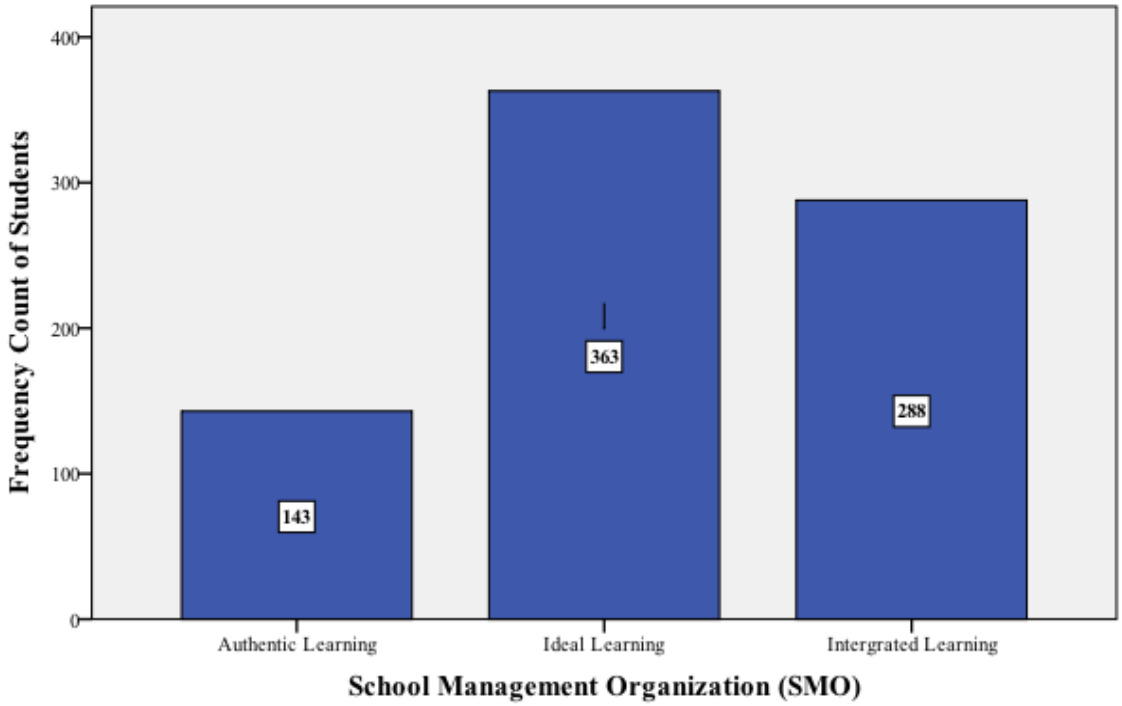
| | | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| Valid | MSC Carter | 3 | 4.9 | 5.2 |
| | MSC McKinley | 4 | 6.6 | 12.1 |
| | MSC Washington | 7 | 11.5 | 24.1 |
| | MSC Adams | 14 | 23.0 | 48.3 |
| | MSC Taylor | 6 | 9.8 | 58.6 |
| | MSC Jackson | 8 | 13.1 | 72.4 |
| | MSC Harding | 3 | 4.9 | 77.6 |
| | MSC Lincoln | 4 | 6.6 | 84.5 |
| | MSC Roosevelt | 2 | 3.3 | 87.9 |
| | MSC Truman | 7 | 11.5 | 100.0 |
| | Total | 58 | 95.1 | |
| Missing | | 3 | 4.9 | |
| Total | | 61 | 100.0 | |

# APPENDIX C

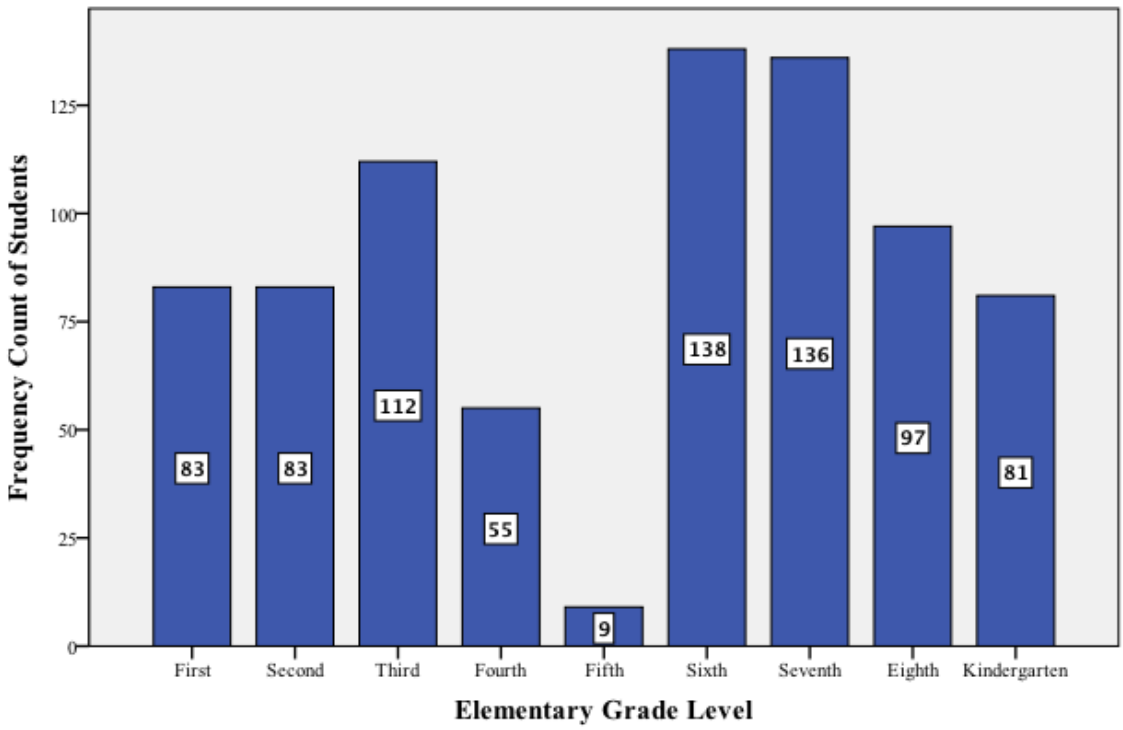
## ELEMENTARY STUDENT DEMOGRPAHIC INFORMATION


Number of Elementary Students by Campus Name (N=794)
Frequency Count of Students in Data Set
250
200
150
100
50
0
45
12
114
77
28
52
138
103
225
Carter
Harding
Lincoln
McKinley
Roosevelt
Taylor
Truman
Washington
Wilson
Midwest School of Choice Campus Name

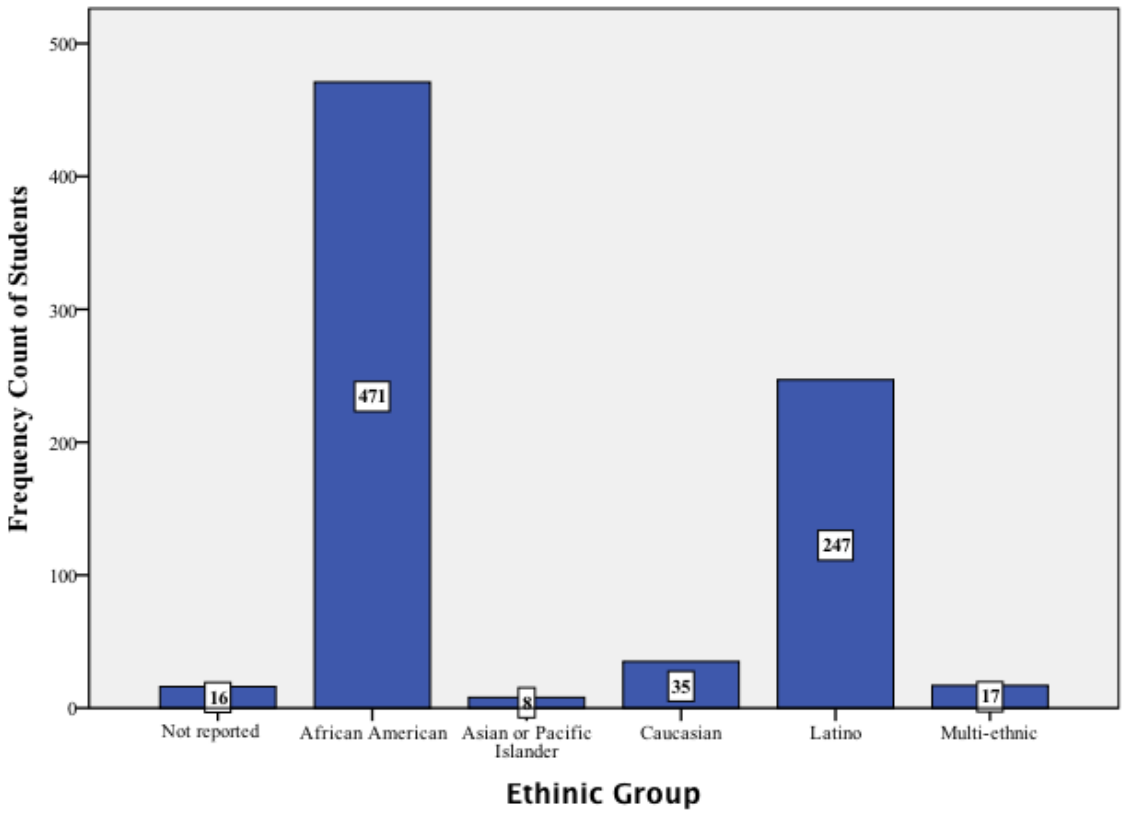
**Number of Elementary Students by School Management Organization (N=794)**



**Number of Students by Grade Level (N=794)**



**Number of Elementary Students by Ethnicity (N=794)**



# APPENDIX D

# PATTERNS OF ADAPTIVE LEARNING SURVEY (PALS)—TEACHER SURVEY ITEMS (MIDGLEY, 2000)

**Mastery Goal Structure for Students (MGSS)-** (α = 0.81, X=4.07, SD= .56, skew = -.33)

3. In this school: The importance of trying hard is really stressed to students.
5. In this school: Students are told that making mistakes is OK as long as they are learning and improving.
14. In this school: A lot of the work students do is boring and repetitious.
16. In this school: Students are frequently told that learning should be fun.
20. In this school: The emphasis is on really understanding schoolwork, not just memorizing it.
22. In this school: A real effort is made to recognize students for effort and improvement.
27. In this school: A real effort is made to show students how the work they do in school is related to their lives outside of school.

**Performance Goal Structure for Students (PGSS)-** (α = 0.70, X= 3.02, SD= .67, skew = -.17)

7. In this school: It's easy to tell which students get the highest grades and which students get the lowest grades.
10. In this school: Students who get good grades are pointed out as an example to others.
12. In this school: Students hear a lot about the importance of getting high test scores.
15. In this school: Grades and test scores are not talked about a lot.
25. In this school: Students hear a lot about the importance of making the honor roll or being recognized at honor assemblies.
29. In this school: Students are encouraged to compete with each other academically.

**Mastery Approaches to Instruction (AIMAT)-** (α = 0.69, X= 3.44, SD= .76, skew = -.16)

4. I make a special effort to recognize students' individual progress, even if they are below grade level.
11. During class, I often provide several different activities so that students can choose among them.
13. I consider how much students have improved when I give them report card grades.
26. I give a wide range of assignments, matched to students' needs and skill level.

**Performance Approaches to Instruction (AIPAT)-** (α = 0.69, X= 2.21, SD= .85, skew = .32)

1. I give special privileges to students who do the best work.
9. I display the work of the highest achieving students as an example.
17. I help students understand how their performance compares to others.
19. I encourage students to compete with each other.
21. I point out those students who do well as a model for the other students.

**Personal Teaching Efficacy (PTE)-** (α = 0.77, X= 3.36, SD= .66, skew = -.12)

2. If I try really hard, I can get through to even the most difficult student.
6. Factors beyond my control have a greater influence on my students' achievement than I do.
8. I am good at helping all the students in my classes make significant improvement.
18. Some students are not going to make a lot of progress this year, no matter what I do.
23. I am certain that I am making a difference in the lives of my students.
24. There is little I can do to ensure that all my students make significant progress this year.
28. I can deal with almost any learning problem.

# APPENDIX E

## TEACHERS' SENSE OF SELF-EFFICACY SCALE (TSES)—LONG FORM SCALE ITEMS (WOOLFOLK & HOY, 1990)

**Personal Efficacy (TSES_PE)*- reliability coefficient =.75**

1. When a student does better than usually, many times it is because I exert a little extra effort.
5. I have enough training to deal with almost any learning problem.
6. When a student is having difficulty with an assignment, I am usually able to adjust it his/her level.
7. When a student gets a better grade than he/she usually gets, it is usually because I found better ways of teaching that student.
8. When I really try, I can get through to most difficult students.
11. When the grades of my students improve, it is usually because I found more effective approaches.
12. If a student masters a new concept quickly, this might be because I knew the necessary steps in teaching that concept.
14. If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson.
16. If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him/her quickly.
18. If one of my students couldn't do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty.
19. If I really try hard, I can get through to even the most difficult or unmotivated students.
22. My teacher training program and/or experience has given me the necessary skills to be an effective teacher.

*All items are reverse scored.

**Teaching Efficacy (TSES_TE)- reliability coefficient = .79**

2. The hours in my class have little influence on students compared to the influence of their home environment.
3. The amount a student can learn is primarily related to family background.
4. If students aren't disciplined at home, they aren't likely to accept any discipline.
9. A teacher is very limited in what he/she can achieve because a student's home environment large influence on his/her achievement.
10. Teachers are not a very powerful influence on student achievement when all factors are considered.
13. If parents would do more for their children, I could do more.
**15. The influences of a student's home experiences can be overcome by good teaching.
17. Even a teacher with good teaching abilities may not reach many students.
20. When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment.
**21. Some students need to be placed in slower groups so they are not subjected to unrealistic expectations.

** Questions 15 and 21 were removed from the Teaching Efficacy average since the authors cite possible issues with the loading of those questions.

# APPENDIX F

# TEACHER AWARENESS OF STUDENT PERFORMANCE TARGETS IN THE EDUCATIONAL ORGANIZATION

| In previous years teaching at a MSC campus, were you aware of: | N | % Responding "Yes" |
|---|---|---|
| any Midwest School of Choice set targets? | 55 | 74.55% |
| any School Management Organization targets? | 55 | 78.18% |
| any grade level targets? | 53 | 79.25% |
| Do you set student performance targets in your classroom around NWEA or EPAS? | 54 | 70.37% |

# APPENDIX G

# PARTICIPANT COMMENTS REGARDING STUDENT PERFORMANCE GOAL SETTING

| Goal Setting Comments | Frequency |
|---|---|
| 2 point gain for each class (with emphasis on 2 points for each student) | 4 |
| Growth goals from testing | 2 |
| Average class ACT scores and growth and goals | 1 |
| Bulls eye with classroom averages and goal for both reading and math | 1 |
| Data is taken from test and students are labeled accordingly, so honor classes are given challenges | 1 |
| Each student has math and reading growth targets and specific skills (the lowest) to focus on | 1 |
| Each student knows their NWEA reading and math goal. I also display the overall class goals. | 1 |
| EPAS | 1 |
| Every student has NWEA goals after every test. | 1 |
| Goal score to get on the next test | 1 |
| Goal setting of 20%25 by the end of the year | 1 |
| I am looking for a 2 point growth on December testing. | 1 |
| I help set and support reading performance targets even though I teach writing. | 1 |
| I set targets based on data and teach around those skills | 1 |
| I use NWEA data to determine appropriate goals for my students. | 1 |
| Individual student targets and goals are set | 1 |
| Integrate test questions into daily work to push students. | 1 |
| Looked at both normative growth and growth actually achieved to set target | 1 |
| NWEA | 1 |
| NWEA is set up for individual students making it easier to set goals for the sped. students. | 1 |

| | |
|---|---|
| Paw charts outside of our classrooms which displays students' goals in both reading and math. | 1 |
| Set growth goals for each student. | 1 |
| Students are given their scores during EPAS and we review the scores, and create individual goals | 1 |
| Students work with the teacher to set their goals | 1 |
| The students are given their target goal before every NWEA test. Also, the classroom is given a goal | 1 |
| They are aware of their scores for each test and what they want to try and beat! | 1 |
| We have a goal of students growing at least two points. I have become more intentional. | 1 |
| We look at their [NWEA] RIT score for reading and math in the fall, and set their goal for the spring | 1 |
| We set a class goal (the same as the MSC goal) and individual goals (the same as the MSC goal). | 1 |
| We set an Authentic Learning goal which is above the NWEA target score. | 1 |
| We set goals for how many points a student needs to grow during the course of the year | 1 |
| Yes, we look at the trends of their scores on their NWEA graphs and we set a goal with the students | 1 |
| Total Comments | 36 |

# APPENDIX H

# ELEMENTARY BEST FIT MODELS WITH

# STANDARDIZED REGRESSION COEFFICIENTS

Table H1.Standardized regression coefficients for Trimmed Models NWEA Math and Reading for Research Hypothesis 4

| Variable | NWEA Math B (*t*) | NWEA Reading B (*t*) |
|---|---|---|
| Constant | | |
| AIMAT | 0.140** (3.13) | 0.111* (2.46) |
| AIPAT | -0.239*** (-6.78) | -0.193*** (-5.38) |
| Efficacy_Mean | -0.655* (-2.55) | -0.564* (-2.15) |
| Efficacy_Mean*AIMAT | -0.583*** (-3.32) | -0.504** (-2.76) |
| Efficacy_Mean*AIPAT | 1.209*** (5.12) | 1.097*** (4.60) |
| N | 754 | 746 |

***. Regression coefficient is significant at the 0.001 level (2-tailed).

**. Regression coefficient is significant at the 0.01 level (2-tailed).

*. Regression coefficient is significant at the 0.05 level (2-tailed).

Note. *t* statistics are in parentheses.

AIMAT= Mastery Approach to Instruction, AIPAT= Performance Approach to Instruction, Efficacy_Mean= Personal Teaching Efficacy

Table H2. Standardized beta coefficients for the best fitting models in math and reading for Research Hypothesis 5

| Variable | NWEA Math B (*t*) | NWEA Reading B (*t*) |
|---|---|---|
| Constant | 4.694* (2.32) | 4.493* (2.19) |
| PGSS | 2.940*** (4.63) | 2.559*** (4.07) |
| Efficacy_Mean | 8.171** (2.99) | 0.599 (1.20) |
| Efficacy_Mean*PGSS | -2.561** (-3.01) | |
| N | 746 | 746 |

***. Regression coefficient is significant at the 0.001 level (2-tailed).

**. Regression coefficient is significant at the 0.01 level (2-tailed).

*. Regression coefficient is significant at the 0.05 level (2-tailed).

Note. Entries are unstandardized regression coefficients. *t* statistics are in parentheses.

PGSS= Performance Goal Structure for School, Efficacy_Mean= Personal Teaching Efficacy

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